The Builder.

VOL. XXII.—No. 1099.

"Going Along." Geneva and Home.

FROM tranquil Villeneuve we rail round the crescent-lake to Geneva, falling in again with hosts of tourists, the summer having now advanced; and strengthening, amongst other gains, our belief in the old teaching, "not to trust to appearances." How rough, unkempt, and ill-dressed were those three Englishmen, hairy and dirty, who lounged in the carriage, seeming to have no eyes for what was around them: and yet how well they showed in botany, geology, and antiquities, when accident and a clever little woman waked them up and brought them out of their shells: men of the Muscular-Christianity school, and above nothing. Still, why hide within such a dirty crust?

The management of this line is not first-rate, and the porters are eminently inattentive. Arriving at Geneva in a shower, passengers anxious, therefore, to obtain conveyances, not a man of these said porters would trouble himself to lift so much as a bundle of cloaks!

In and around Geneva, the builder and improver, as we have had occasion to say more than once elsewhere, are at work. In the neighbourhood of the *Jardin des Plantes*, and the Public Gardens, a pleasant part of the city, some fine houses are in course of erection beyond the bastion. Here, too, a bridge has been erected over a lower road, with flights of steps down from it. In another part, a Russian church has been commenced, which is to be full of cupolas, some say eight, as is the Russian's wont. It will give a fresh feature to the town. The English church here is a nearly new Gothic edifice, of fair character, especially outside: within, a little more money might be usefully spent to deprive it of its white-washy aspect. On the Sunday it was filled with our countrymen and country-women, a pleasant sight in a foreign land, and the service was well performed.

In the *Jardin Anglais*, which is separated from the lake only by a light iron railing, a handsome bronze fountain has been erected quite recently. Four large figures—one of Commerce, and another, an old man, possibly a personification of the Rhone,—are grouped around the pedestal which supports the central basin. The water from this flows through holes a little below the brim, and falls into the lowest and largest basin; while above, four chubby children holding hands, surround the support of the uppermost and smallest basin, an urn-shaped ornament surmounting the whole.

The gardens looked rather new, the walks stony and loose; but the flowers were most luxuriant, including parterres of perfumed heliotrope, beset with bees and butterflies; bright, sparkling, many-coloured phlox; marvellously-scarlet verbena; handsome balsams in profusion; and magnificent roses.

The path by the lake is very pleasant, giving a view into the singularly clear water, where myriads of small fish disport themselves, darting in and out of cracks and crannies in the huge rocks below; while a handsome swan sails majestically along, as if accustomed to be fed and petted by loungers in the garden. In among the vessels, a few yards to the right, two huge lumps of rock stand up dangerous and defiant, in strange proximity, one of which is known as the altar of Neptune, tradition speaking of sacrifices offered on it to the water god. The quays around have been greatly improved, and the houses have a good face on them. And yet it can scarcely be said that Geneva is in all things flourishing. The staple trade of the city, watch-making, has been much disturbed of late years, and is still depressed. The number of watches made here has always been over-stated; many of the watches made in Neuchâtel and other parts of Switzerland, where are produced enormous numbers, being attributed to Geneva. In 1848 political events paralysed the trade. In 1851, Great Exhibition year, it revived, and it is calculated that about 65,000 watches were made in the twelve months,—a number which may be taken as the annual average of Geneva's best time. In 1860 the number turned out was about 40,000, and in 1861, 10,000 less. There is a law in Geneva which prevents the sale of a watch whereof the gold is not of a certain high degree of purity, and this of course gives an advantage to the less scrupulous makers in other parts of Switzerland, in markets where inferiority is not discovered; but in the end, the guarantee which the law in question thus affords the purchaser of a genuine Geneva watch, will bring back buyers and restore prosperity to the trade. The world, moreover, will always help to support Geneva: its lake, lovely position, charming suburbs, and past history attract visitors of all nations. Calvin, Cranmer, Lesage, Saussure, John Knox, Necker, Rousseau, Voltaire, Byron, and Sir Humphry Davy are some of the ghosts that haunt its streets and buildings. The cathedral, not half so well known as it deserves to be, and of which anon, takes back those who see with the mind eight hundred years,—to a time *before* Geneva fell under the sovereignty of the Emperors of Germany. And as to the hills around, of what time do they tell? On the Lago Maggiore we first got sight of the second of European mountains; on Lake Leman, its master comes into view:—

> "Mont Blanc is the monarch of mountains,
> They crown'd him long ago:"

and although his high mightiness does not condescend to be very often visible there,—about once in every six days is the average of the year,—when he does show it is a sight to remember. What is it Coleridge hymns on viewing "Sovran Blanc" before sunrise,—

> "O dread and silent Mount! I gazed upon thee
> Till thou, still present to the bodily sense,
> Didst vanish from my thought: entranced in prayer
> I worshipp'd the Invisible alone.
> Yet, like some sweet beguiling melody,
> So sweet, we know not we are listening to it,
> Thou, the meanwhile, wast blending with my thought,
> Yea, with my life and life's own secret joy;
> Till the dilating Soul, enrapt, transfused,
> Into the mighty vision passing,—there,
> As in her natural form, swell'd vast to Heaven."

The water of the Rhone, which divides the town into two parts, and, in conjunction with the lake, has led to the construction of a whole *rendezvous* of bridges, with an island and a statue of Rosseau in the midst, is certainly wonderfully blue; and where it first issues out of the lake, rattling and tumbling over certain artificial arrangements, strikes the eye marvellously. It does not keep its brilliant colour long. From the grounds of a little country-house, about a mile and a half from the town, the brown muddy Arve may be seen creeping into the clear bright blue Rhone, at the point of a narrow tongue of land; and odd enough is the effect produced. The two rivers glide on side by side for a time without intermixture, obviously apart; but soon dirt triumphs, and the streams are no more distinguishable;—the Rhone retains its name, absorbing the Arve, but losing its purity and beauty. It seems too bad that, having washed itself and deposited its own dirt in the Lake of Geneva (thus gradually but appreciably lessening the lake's depth, by the way), it should so soon be again contaminated.

Sir Robert Peel has a pretty seat not far from this spot; and Baron Rothschild a château of larger pretensions, which forms a good object as seen from the lake.

Returning to the town, the steam-boat is starting, and we may as well get a general notion of "clear, placid Leman," at some distance from Geneva, and of the villages on its banks. We cannot agree with Voltaire, who said his lake, meaning this, was "the first,"—A 1. The extent, the smiling character of the surrounding country, the Alps on one side at a distance, and the Jura chain on the other, with Mont Blanc now and then, and the memories which haunt the lake always, make it attractive and delightful; but for picturesque and varied beauty, now smiling, now threatening, it certainly cannot compare with either the Lago Maggiore or that of Como.

Coppet, on the north bank, the retreat of Necker and of Madame de Staël, soon comes into view. It was to the large rambling château here that Madame de Staël retired when first banished from Paris by Napoleon. Talleyrand, her friend, was to communicate the edict to her, and he did it after this fashion: "I hear, Madame, that you are going into Switzerland." "Oh, no! you are wrong," said she, "I have no such intention." "Pardon me," was the rejoinder, "I am told, on the *very best authority*, that you will quit Paris in three days." And so she went to Coppet. As long as she could have friends around her there the place was endurable; but when those she loved best were exiled for visiting her, stay became impossible, and other countries were sought. Friendship was a passion with her; any diminution of it on the part of those she prized brought down reproaches. "Your friends," once said Madame de Saussure to her, "have to endure charges of coldness and neglect every morning." "What, odds," was the reply, "if I love them the better every evening? I would go to the scaffold to assure myself of the friendship of those who accompanied me." The life of this remarkable woman, whom Byron called "the incomparable Corinna," was a mixture of triumph and distress; of splendour and misery. An equal power of uniting around her distinguished men of all shades of opinion has perhaps never been possessed by one woman: and amongst them she found her happiness.

Nyon, which follows soon after Coppet, has Julius Cæsar for a founder, and still shows relics of the Roman domination. Near this place, where the lake opens out to its full width, a residence has been built for Prince Napoleon, half *quasi* Gothic and wholly ugly. It has a chimney shaft in the centre of the front, and a little tower that looks as if intended for a water-tank. France should have done better.

Rolle, having a monument to General La Harpe on a small planted island in the lake; and Morges, with its ancient square donjon, of brick, lofty and large, are seen; and then comes Ouchy, where we land, to walk once more through and about the noble and finely-placed Cathedral of Lausanne: in due time again taking to the boat to return to the *Hôtel de l'Ecu de Genève*.

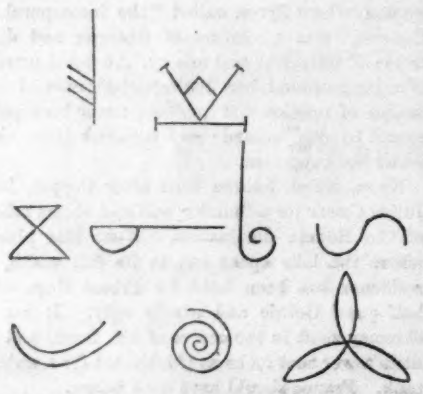
The lights on the several bridges and the quays, further reflected in the water, and a sky bright with a myriad stars, make a pleasant picture from the balcony, to which the balmy air soon draws us. If one really *could*

> ——"Hold a fire in his hand,
> By thinking on the frosty Caucasus;
> Or cloy the hungry edge of appetite,
> By bare imagination of a feast;"

the recollection of such an evening would make endurable even a shivery day in London fog.

Besides the division of the city by the Rhone, the main portion, lying on the south side of the

river, is again divided into the upper town and lower town: and toiling up to the former to reach the cathedral, the houses there are seen to be older and larger than those in the lower town: they accord much better with the stirring incidents, *escalades*, and such-like, that belong to the Mediæval history of Geneva. A huge Corinthian portico added on at the west end of the cathedral, promises little; but get round to the east end, and so into the building, and a noble structure opens to view. The plan is a Latin cross, with polygonal east end: the lower part of the building throughout has semicircular arches, on columns, with Romanesque capitals: the upper part is Pointed. At the extreme east end (using this term here as we have done throughout these notes as conveying a clear impression to English minds, and not as asserting that the churches we have had occasion to describe are all placed due east and west) we find arcading of earlier date than the rest of the church. The arches spring from pilasters which are fluted, and in other respects approach the Classical: some of the capitals exhibit more than usually beautiful Romanesque foliage, and others a figure under a canopy. Occasionally, the flat pilaster is covered by the later shaft, built up to carry the groining of the roof. The commencement of the building is popularly ascribed to Conrad I., who died in the year 918. The stones, both of the earliest and the later work, and as well in the triforium and clerestory as below (though not so obviously at the west end as elsewhere) show a large variety of Masons' Marks, some of them apparently "doctored" by the gossipping custodian, who has a theory of his own concerning them. To the practised eye, however, any alteration in them is at once evident. Amongst the Marks here are seen the pentacle, the V and reversed V, the N form and some other of those which have been found on buildings of all ages and many countries. We engrave a few of the less general forms, selecting those which we found also used in Lausanne Cathedral. The first of them, formed of parts of three circles, is on the earliest portion of Lausanne, and on the later semicircular work of Geneva.



The cathedral contains several important monuments. On the large black marble sarcophagus supported on *couchant* lions, raised in the south transept by Madame de Rohan to her husband, Count Henri de Rohan, who was killed, not at the siege of Rochelle, as stated on the spot, but at the battle of Rheinfelden, a hideous plaster figure, seated, with baton in the right hand, and resting on his knee, has taken the place of a white marble statue of the count, which was destroyed at the time of the French Revolution in '93. His armour, a fine suit, beautifully preserved, and also sent by the widow, lies on the sarcophagus. In the opposite transept, by the way, may be noticed on the door leading to what is now a vestry-room, some ornamental iron-work, gilt, which is nailed on, the door itself being painted red: it takes the shape of corn, with acorns and cardinals' hats intermixed. The canopy of the pulpit is dated 1402; and under it is shown the chair used by Calvin, almost triangular in shape, and with carved paterœ and arms upon it.

Calvin was long a name of power in Geneva. Passing through it a wanderer, accident detained him there, and in a brief period he became to all intents and purposes its master, ruling with an iron hand for nearly a quarter of a century. His power of work was astounding. Under one of his laws, made three hundred years ago, there was no theatre in Geneva until recently. At the present time, however, representations are given even on *Sunday*.

And now for Macon by rail, and so to Paris for home. About twenty miles from Geneva you get a very long tunnel, and then come Bellegarde and French custom-house officers. Here, in dark station, "cabin'd, cribbed, confined," we ran against "Ulster" (amongst other acquaintances), returning to his capital, and Carlisle: even the gracious Burke, however, in this place could nothing find Sublime or Beautiful.

On, through Seyssell and its asphalte to Oulos, whence the rail branches off that will run to Turin through Mont Cenis when the great bore is achieved. The works are going on well, and we shall be surprised if the Alps exist, so far as travelling into Italy be concerned, six years hence.

There is not much to see on the road; and if there were, it could not *be* seen for the trees which line the sides. *Nota Bene*: the planting of trees on railroads is a mistake. Use the slopes of cuttings for arboricultural and agricultural purposes if you will, but don't plant trees at the top edges of embankments!

At Macon, where we sleep, there is a bridge of nine arches over the Saône. The remains of the former cathedral, too, are curious, and worth hunting out. The interior portion remaining is Romanesque strangely altered. There is an opening with a large semicircular arch opposite the altar, having five ranges of figures in it and a vesica piscis. A new market has been built, near these remains, and is ugly enough. Again taking the road, Chalons-sur-Saône, amongst other places, is passed, and we find as the most noteworthy thing, many new residences building there and elsewhere on the route, and the extensive construction of quay walls going on, to make rivers navigable. And then, coming once more into the glittering capital of France, we abandon, so far as this series is concerned, the half-threat made in our first chapter, to say something more of modern doings there; rush over to—

> "That pale, that white-faced shore,
> Whose foot spurns back the ocean's roaring tides,
> And coops from other lands her islanders;"

and end at once our "Going Along."

These notes, all too short as they have been for the many subjects touched, have already run out to greater length than was intended. Let us hope they have not been found *too* long. Two days are wanting to complete the six weeks we took at starting, and we have looked into France, Bavaria, Southern Germany, Austria, Tyrol, Venetia, Northern Italy, and Switzerland; signalizing some of the buildings, works of art, and natural beauties that are prominent, and showing our younger readers, as was the chief aim at starting, what long distances may be travelled and how many things may be seen in a short time. Such journeys give the mind materials to work on; lead to fresh combinations, fresh ideas: recollections and bright pictures are garnered up that never wholly depart, but assert themselves, often unexpectedly, in later years, stimulating, perhaps, in moments of less energetic life, or illustrating and giving additional brightness to epochs of fresh enjoyment. The ruin comes back to us peopled: we again see with the eyes of youth, and at the same time profit by the teaching and warning such recollections bring. There are ever some notes of solemn music in the voice of past days, let the voice sing as gaily as it may.

MR. McCLEAN'S ADDRESS, AS PRESIDENT OF THE INSTITUTION OF CIVIL ENGINEERS.

In the course of his address, on taking the chair for the first time after his election, the President said,—

The progress of engineering science has been so fully recorded by my distinguished predecessors in office, that I propose on the present occasion, instead of describing any engineering works, to point out the extraordinary effects these works have exercised during the last thirty years, in promoting the material and intellectual progress of Great Britain, and increasing the comforts and social enjoyments of all classes of its inhabitants. I will endeavour to show that the wonderful prosperity attained during that period is to be attributed mainly to our railway system, which has enabled us to develop the mineral resources of the country, and at the same time to provide secure and reproductive investments for the profits realized by the successful working of the system.

It is a prevalent opinion, that the increased prosperity of the country to which I refer has been the result of improvements in the cultivation of the land, better drainage and farming, and in consequence of the railway system having provided better means of access to markets and places for disposing of the products of the soil, and obtaining suitable materials for renewing its fertility. In order to show the incorrectness of this opinion, it will be necessary to refer to the reports of the Commissioners of Inland Revenue, which give returns of the property and income of Great Britain, at two different periods especially suitable for the comparison I wish to make; one before the works of the civil engineer had attained much importance, and the other after the successful application of the steam-engine to locomotive purposes had led to the construction of our present magnificent system of railways.

The years selected for the purpose are 1815 and 1856, the return of the property and income of the country being fully given for those years in the reports of the Commissioners. Besides, the year 1815 was the last year of the income tax in which accurate statistics can be obtained of the prosperity and income of Great Britain. It was also the last of a long series of years of war, during the whole of which the property and income tax had been in operation; and, as the financial necessities of the Government were great, we may safely accept these returns as accurate, and rely that no source of income or property which could be brought within the operation of the Chancellor of the Exchequer has been omitted from the account, and allowed to escape taxation. It was, moreover, a period in which most of the great discoveries of the engineer, except the locomotive engine, were in full operation. The steam-engine, as improved by Watt, had been in operation forty years before, pumping water from mines, raising minerals, and providing motive power; and Arkwright and other great inventors had perfected the machines employed in textile manufactures, and had brought them into general use.

In the returns referred to we find each source of income under a separate head; and, in order to make the comparison as simple as possible, I take in all cases the amount of the tax under that head as the measure of the value of the property or income assessed, as set forth in the following tables:—

Tables of the Net Amount of the Property and Income of Great Britain, from all Sources, liable to Assessment for Taxation in the Years 1815 *and* 1856.

Table No. 1.—Year 1815.

Land,—Land, tithes, manors, fines	£41,521,492	0	0
Houses (exclusive of farmers' houses)	16,259,400	0	0
Profits on realized property,—Quarries, mines, ironworks, &c.	1,452,104	0	0
Farmers' profits	21,762,280	0	0
Funds	30,048,620	0	0
Profits of trade and professions	30,211,889	0	0
Government Departments	11,132,450	0	0
Total	£152,388,226	0	0

Incomes and profits exempt under 50*l.* per annum during this year.

Table No. 2.—Year 1856.

Land. — Land, tithes, manors, fines, fisheries	£38,153,935	0	0
Houses (exclusive of farmers' houses)	48,435,585	0	0
Profits on realised property,—Quarries, mines, ironworks, canals, railways, gasworks, and other property	18,087,963	0	0
Farmers' profits	24,224,443	0	0
Funds	24,407,360	0	0
Profits of trade and professions	74,551,046	0	0
Government Departments	14,607,036	0	0
Total	£242,467,368	0	0

Incomes and profits exempt under 100*l.* per annum during this year.

In table No. 1 we find, that in the year 1815, or forty years after the steam-engine had been improved and used for saving labour and producing motive power in connexion with mining and manufactures, the whole annual income derived from quarries, mines, iron works, and other property, was only 1,452,104*l.*

In tables Nos. 1 and 2 we find the net income available for taxation, derived from land, and the profits of the farmers, taken together, in 1815 to be 63,283,772*l.*; whilst in 1856 it was only 62,378,378*l.*

The net income derived from houses during the same period, had increased from 16,259,400*l.* to 48,435,585*l.*, an augmentation of 32,176,185*l.*, or nearly 300 per cent.

The net profits derived from mines, quarries, ironworks, canals, railways, and other profits, had increased from 1,452,104*l.* in 1815, to no less a sum than 18,087,963*l.* in 1856, or upwards of 1,200 per cent.

From these figures we learn that, during the forty years over which the comparison extends, the profits and income of land together had not increased, notwithstanding the construction of roads, railways, canals, and other public works, and the relief from poor-rates afforded to it by the extension of the rate on other property, and by the absorption of the increased population in new occupations (as shown by the Population Returns), the number of labourers employed on the land at the Census of 1861 being less than in the year 1815. No doubt the condition of all classes connected with the land, including the landlord, farmer, and agricultural labourer, had improved during the period in question, and much capital had been expended in farm-buildings, drainage, and machinery. Yet the net annual income available for taxation in 1856, derived from land and farmers' profits, was not greater than in 1815, although the income derived from all other sources of property, during the same period, had largely increased, as we find in the tables,—the net amount of income derived from the profits of trades and professions available in 1815 being 30,211,880*l.*, and in 1856, 74,551,046*l.*, showing an increase in the latter year of nearly 150 per cent., the exemptions from income tax being under 50*l.* per annum in 1815, and under 100*l.* in 1856.

In these tables we also find the total net amount of income derived from all sources available for taxation in 1815, to be 152,388,226*l.*, and in 1856, 242,467,368*l.*, showing an increase of 60 per cent., or upwards of 90,000,000*l.* (which, on the basis of the taxation of 1815, would have yielded 9,000,000*l.* additional tax), from sources independent of the land.

I will now attempt to point out the causes of the enormous increase of the income of Great Britain, shown by the tables, representing the profits of many hundreds of millions sterling invested in railways, canals, mines, ships, and other works, in this country, in India, and in our colonies.

Fortunately the railway system, since the introduction of the locomotive engine, improved by Stephenson, gave it vitality, has been a complete success, in the reproduction of capital, in the enormous saving in the cost of transport, and in the facilities it affords for the development of mines, and of nearly all branches of national industry.

After the opening of the Manchester and Liverpool Railway, the accumulated wealth of Great Britain, which, previous to that time, had been but sparingly invested in public undertakings, and was for the most part hoarded or placed on doubtful securities, was thrown lavishly into the railway system; and, although for a time this led to the belief that the supply of capital for the construction of such undertakings was inexhaustible, and induced excess of speculation, temporary distress, and subsequent distrust in the system; yet the progress of railways ever since that period has been steady, and a reproductive profit has been assured on a capital of nearly 400,000,000*l.*

This vast capital has been created because railway securities, on the principle of limited liability, occupy the highest place in public estimation for investing the realized profits of the country, in consequence of the facility with which they can be purchased, and transferred in amounts suited to the requirements of every class of society; and this leads to a constant accumulation of capital by inducing people to save a portion of their income,—not merely for their own support in an after-period of life, but for the benefit of their descendants. Thus railway securities afford the means of transmitting wealth, as printing does knowledge, from one generation to another.

The beneficial effects of the railway system has not been confined to Great Britain. Before the introduction of railways, the land was nearly the only safe means in Europe for the investment of capital: and, in consequence of the competition for this security, the interest was reduced to a minimum rate, and was barely sufficient to induce people to save a portion of their income. The construction of railways, by inducing saving, has established a wealthy and educated middle class in most countries in Europe, who have not only developed the industrial resources and increased the capital of the country to which they belong, but have also, as in this country, promoted education, and humanized the conduct of all classes of the people.

I have only one more remark to make on railways as a cause of the increase of wealth. The land occupied by railways in Great Britain is under two hundred thousand acres, including stations and other conveniences; and to obtain possession of this land it has been necessary, during every session of Parliament for the last thirty years, to engage the services of the ablest counsel and the most eminent engineers in the committee-rooms of both Houses, at an incalculable expense. The land used for agricultural purposes is about forty million acres, and yet the railway system, occupying only about one half per cent. of the total area of the land, now pays nearly as great an amount of Income and Property Tax as is paid by the whole of the farmers of Great Britain.

Another source of wealth is the great deposit of coal and iron-stone, and other minerals, in nearly every part of the kingdom.

The most important of these is coal. The quantity of coal raised in Great Britain is now about one hundred millions of tons yearly, produced by the labour of about three hundred thousand men.

We are indebted to Professor Liebig, the celebrated German chemist, for data by which we can estimate the value of this enormous quantity of fuel, by comparing it with wood, or any other produce of the soil.

Liebig informs us that every acre of fertile land will produce yearly about two tons and a half of wood, or other crop, which contains about the same quantity of carbon (80 per cent.) as one ton of coal. The one hundred million tons of coal now raised annually from our mines contain about eighty million tons of carbon: and to produce the equivalent of this in wood would require one year's growth of, in round numbers, one hundred millions of acres of land,—an area about four times larger than the arable and pasture land of England (which does not exceed twenty-five million acres), and as nearly as possible equal in extent to the area of the kingdom of France. Yet this supply of fuel, even if it existed in the form of wood, would be practically useless as a substitute for coal: the labouring population of the kingdom would be unable to cut and convert it: the whole of our railways and canals would not suffice to transport it; while the cost of these operations, if no other obstacle intervened, would prevent them from being carried on beneficially.

The development of coal, then, is mainly the cause of the increase of wealth; but if railways had not proved reproductive investments, this mineral would have added little more to the wealth of Great Britain than it did in 1815, as shown by Table No. 1.

The serious question as to the permanence of this fuel, on which the wealth of the nation so much depends, has been prominently raised. Since the great discovery of Murchison that coal underlies, and may be found with reasonable certainty under, the lower new red sandstone and permian formations, which extend over millions of acres of Great Britain; and, if beneath them, at greater depths, under all the measures which overlie the permian, and which together comprise upwards of one-half of the area of Great Britain, we may consider our coal-mines to be practically inexhaustible, and that we have not to fear any deficiency in quantity arising from the exhaustion of the mineral, but rather the practical difficulty of obtaining it from a great depth below the surface, in consequence of the central heat of our globe; which it is alleged will ultimately, and within a defined and not distant period, reduce the production to a limited supply.

Much may be said in support of the theory of central heat, but I think undue importance has been given to it, as a difficulty in mining operations. A comparatively thin coating of clay, or fire-bricks, surrounding a blast furnace filled with molten iron, affords such protection that the hand may be placed without inconvenience on the outer surface of the brickwork; and it is difficult to understand how any internal heat can penetrate through the crust of the earth,—estimated to be thirty-four miles in thickness,—so as to interfere with the temperature at the comparatively small depth from the surface at which mining operations are carried on. I am of opinion that the heat, which undoubtedly exists in some mines, arises, not from central heat, but from superincumbent pressure, and defective ventilation. The gases in the coal are highly compressed, and, when liberated by mining operations, are at a high temperature; but we know that with large shafts air may be conveyed to any depth that has yet been reached in mining operations, without in the slightest degree altering its temperature; and that by a proper enlargement of the air passages, air descending the shaft may be distributed through the workings, so as to lessen the liability of accident from explosion, or serious inconvenience from heat, at any depth to which shafts can be sunk. The system of sending compressed air down the shaft by means of water is found to abate inconvenience in deep mines owing to an excess of temperature.

I therefore think that the time when we shall experience a want of coal, arising from exhaustion, or from difficulties occasioned by the depth of the mines, or an excess of temperature, need not at present in any way influence our conduct in the development and use of that important mineral; especially as the power (which is the substitute for labour) derived from coal is so cheap, that we are enabled to consume daily for our domestic comforts, for machinery in the conversion of minerals, and for other manufacturing processes, and for export, a power equal to twelve millions of horses, at a cost, at the mine, of not more than one penny per horse-power, working ten hours a day; and no saving in consumption of this enormous quantity of coal can be made, except by employing more expensive labour as a substitute.

With this power at our command the cost of sinking to, and of raising minerals from, the greatest depths, is inappreciable; while the intrinsic value of coal, when compared with any other fuel, is so great that it may be drawn profitably from almost any depth,—the only limit being the strength of the machinery and materials required to raise it. . . . . .

I will now make a few remarks on the extension of the railway system, and especially on the construction of the proposed new lines in the metropolitan districts. It is evident that Parliamentary sanction will not be given to all the lines which have been suggested; but the convenience of the public, and the necessity for relieving the streets of the heavy traffic passing to and from the present railway stations, require that some of these lines should be constructed without delay. The success of Mr. Fowler's Metropolitan line, due to the talent exhibited in its construction, as well as to the tenacity of its promoters in overcoming all difficulties,—those of finance not being the least,—has proved that railways in the metropolis can be made a source of profitable investment.

Much has been said as to the destruction of property which, it is assumed, will result from the execution of the proposed metropolitan extensions; and the question has been discussed as if the property taken were wasted or destroyed, forgetting that it is only a change of occupation, and that the houses pulled down will, in many cases, be much better restored, in accordance with modern sanitary improvements, or the sites will be applied to more profitable uses, tending to the general improvement of the metropolis, the convenience of the public, the relief from local taxation, and the better occupation of the working classes.

The construction of these railways, by means of private funds, is less objectionable than by funds derived from a tax on the coal and wine dues, or any other mode of local or public taxation. If public funds were to be resorted to, the works now so much needed would never be executed, as the enormous capital required would prevent either local boards or the Government itself from undertaking them. Besides, it is only right that those who use these railways should pay for them, and not people living remote from the metropolis, who may never enjoy them.

Occasionally unproductive works of national importance, such as the Thames Embankment

may be executed at the public expense; but the principle of Government construction is inadmissible in this country, in the case of railways or any other public work which can be rendered reproductive by private enterprise.

THE LADIES' SANITARY ASSOCIATION.

COLERIDGE, the philosophical religionist, in speaking of his theoretical ideas of religion, once remarked, that so long as these ideas remained in his understanding or his head merely, they had little influence on his conduct; but that now they had got into his heart and affections, they began to form the practical rule of his life. So is it with sanitary science, especially as regards the poorer classes. So long as it retains its merely theoretical or sciential form it may be said to get only into the heads of the people, if even thus far; but when put into a thoroughly practical and popular shape, and infused, as it were, into their hearts as well as their heads, then it is that sanitary science will triumph in the daily life of the nation. Now, great progress has already been made in sanitary science; but the laborious workers who are driving it into the heads of the people stand much in need of the help of a class of fellow-workers who, with slighter blows, perhaps, have yet a knack of engaging the affections, and of enticing sanitary ideas into the inner region of the people's hearts and habits. Just such fellow workers in sanitary science are the members of "The Ladies' Sanitary Association." This association, to use its own words, "aims at the diffusion of sanitary knowledge among all classes, by the publication of tracts, the delivery of lectures, the establishment of institutions for training nursery maids, and of loan libraries of popular sanitary books." Of the tracts alluded to, which form a sort of popularized compendium of sanitary science, and are being distributed among the people in hundreds of thousands, many are of a homely and entertaining description, while at the same time infusing sanitary ideas in simple and suitable language. Take, for example, one titled "Whose fault is it? How to make a happy home." A little story is here nicely told of a sensible servant girl, who has had the advantage of living in a family a little above her own rank, the heads of which were embued with wholesome sanitary ideas, and who hence enjoyed good health and cheerful spirits. The girl's sister, who has not had such advantages, is married to a workman, lives in a close court, in an uncleanly way, without the least idea of the importance and benefit of ventilation and fresh air, and with unwholesome smells abounding. Sickness hence and lowness of spirits prevail. The husband finds more comfort in drinking at public-houses than in spending his leisure with his family at home, and they sink into still greater misery in consequence. They are visited in this extremity by the unmarried sister, who of course sets all to rights; and on this simple thread a series of useful sanitary maxims is strung, while the interest and affections are engaged in the story. Another of the tracts, titled "The Mischief of Bad Air," is in the form of a simple dialogue. Some are in homely verse,—one of these called "The Sick Child's Cry, and other household Verses on Health and Happiness;" and another, "Household Troubles and Trials,—how to meet them." We may give a slight specimen of this style of tract from the first named:—

"CLEANSING.

Unclose the dark chamber,
Where fever and death
Have breathed out infection
With poisoning breath.

Let light and pure air in,
Through windows and door;
Cleanse the walls and the ceiling
As well as the floor.

Bring back to the dwelling
That choicest of wealth,
The purity, beauty,
And blessing of health."

This is the way to bring sanitary science home to the understanding and the affections—the heads and the hearts—of the humbler classes.

It is not to these classes alone, however, that the tracts address themselves, but to those above them, as well. Thus there is a useful one by Dr. R. Druitt, called "The Health of the Parish;" and another by Mr. H. Roberts, titled, "Healthy Dwellings and prevailing Sanitary Defects in the Homes of the Working Classes."

From "The Health of the Parish" we may here present an extract. The object of the tract is to show what the existing legal powers are; what the machinery is, and how it may be set agoing; and how cheap and efficacious the results usually are:—

Expediency of Making Complaints.

"No person need refrain from making reasonable complaints through fear of being invidious or unneighbourly; for the local authority will satisfy itself of the reasonableness, before taking any steps in the case.

Neither need any one be deterred by fear of expense or personal trouble; for in the few cases in which legal proceedings before a magistrate are necessary, these proceedings are carried on by the local authority, at their own cost, and by means of their own legal adviser and officers; who, moreover, being the chief witnesses, seldom require the testimony of other persons.

There is no reason, therefore, why any person should not appeal to the local authority when his own home is rendered unwholesome by nuisances created by his neighbours. For example,—A gentleman's house had been rendered offensive for years, because a neighbour had made use of a common, old, leaky rain-water pipe, inclosed in a groove of an old, thin wall, which formed part of the outside of the complainant's house, to carry away offensive water from a sink. Private remonstrances and lawyer's letters did no good: but at last the local authority was appealed to; the inspector certified as to the facts, the medical officer of health as to their injurious influence on health: the notice which was issued, and one or two private letters from the medical officer of health, were met by attempts to raise other issues; and so the local authority appealed to the magistrate, who, after hearing the case, ordered the pipe to be removed. Thus, as the magistrate observed, a case which under the old system would have been brought into one of the superior courts, where attorneys, counsel, and a host of witnesses would have occupied a day in swearing and counter-swearing, as their manner is, at an immense outlay of anxiety, trouble, and money, was settled quickly and satisfactorily to all parties, at the cost of 2s., paid by the defendant.

Still more should benevolent persons make use of these legal powers for the protection of the poor. Clergymen, who sit for half an hour, perhaps, reading or praying by the bedside, should for their own sakes be complainants; for they are much more likely to suffer than medical men, who, after they have once thoroughly investigated a case, seldom require more than a few minutes to ascertain how it goes on; and district visitors and others who desire to raise the moral character of the poor, should complain of anything which tends to keep them in a debased condition. Above all, the governors of hospitals, dispensaries, and other institutions for relieving sickness, should make complaint of any houses from which patients are sent to them with diarrhœa, fever, and other disorders possibly arising from putrid miasmata.

If Lord A., or if Mr. B., the rich tradesman, choose to occupy a dirty, unwholesome house, no one can or need hinder him; but if Lord A. send a servant to die in a hospital, of typhoid fever, caught in an unwholesome sleeping-place; or if the workmen in Mr. B.'s factory are made ill by close, stifling air, and foul drainage, and apply to the parish doctor or dispensary for relief, then it is quite just to interpose, and insist on the removal of the causes of ill health, which render these poor people chargeable to the rest of the community.

So, also, if a man choose to live in a poisonous house, let him. But he must not take in lodgers or inmates; and any person who has experienced any real nuisance at a lodging or hotel, would do well to complain to the local authority on behalf of others who may come after.

Any person, then, who desires to benefit the poor, or to benefit himself by keeping down the poor-rate, will do a public service by informing the local authority of anything which may reasonably be believed capable of producing illness. Still more will he do good if he encourage the poor themselves to complain, and to put themselves into a condition to do so by thrift and temperance; for it is only people who pay their way that dare complain: they whose rent is behindhand are obliged to put up with dirt, damp, and nauseous smells; and if they grumble, their 'things' may be seized, and themselves turned into the streets.

Manner of Addressing Complaints.

Persons who wish to complain, if the thing complained of is unmistakeable and palpable, may address a letter by post,—'To the Inspector of Nuisances for the Parish [or District] of ——, Office of Board of Works, London [Postal initial].'

Or they may address it to the vestry clerk, or the clerk of the Board of Works; or may call and enter it in a book at the office. If the matter be one of a doubtful or suspicious nature, or one involving scientific inquiry, or one in which information may rightly be given, though the informant choose to conceal his name, a letter may be addressed,—'To the Medical Officer of Health for the Parish [or District] of ——, London [Postal initial].'"

In another of these tracts, titled "Remarks on Woman's Work in Sanitary Reform," it is well and truly said,—

"Woman's systematic co-operation is essential to the success of sanitary reform. Our legislators may frame wise Acts of Parliament, enforcing sanitary regulations; but some of the greatest causes of disease and death lie quite beyond legislative interference, and can only be removed by woman's agency. 'The Health of Towns Act' may insure good drainage and water supply, pure air, and other important external sanitary requisites; but till every woman frames a Health of *Homes* Act, and becomes a domestic 'officer of health,' none can insure that the pure air shall ever be breathed, the good water ever be sufficiently used, or other sanitary conditions ever be fulfilled in-doors."

Others of the tracts, of a kindred stamp, are, "The Secrets of a Healthy Home," by Mrs. Fison; "Sanitary Defects;" "The Black Hole in our own Bed-rooms;" "The Inspector: How to get rid of bad Smells without, and bad Tempers within." There are many more, as on the health of mothers and infants, the every-day wonders of bodily life, how people hasten death, and so on. The managing committee seem still to contemplate the issue of more of these valuable tracts, but we hope they will excuse our suggestion whether there be not enough for the present, and whether the small means of the Association,—which, we would wish to let our readers understand, are much in need of increase,—would not be expended to better advantage in widening the distribution of those already in print throughout the provinces, as well as in town, by the aid, perhaps, of local committees.

The Ladies' Sanitary Association is affiliated with the National Association for the Promotion of Social Science, and is under highly influential guidance, headed by the Duchesses of Argyll and St. Alban's. The Hon. Mrs. William F. Cowper is the president. The office is 14A, Prince's-street, Cavendish-square, W.; and the secretary is Miss E. S. Griffiths, to whom, or to Mrs. Roth, one of the treasurers, our readers can send their contributions. The tracts, which they may purchase for distribution at from 8s. to 16s. per 100, are mostly sold in retail at 1d. and 2d. each. The Association has our heartiest good wishes.

EDINBURGH AND ITS NUISANCES.

"The Water of Leith! Would it were the Water of Lethe!"—LORD PALMERSTON.

Two or three years ago some account of the sanitary condition of Edinburgh was given in our pages, and we dwelt more particularly on that which we conceived to be its most gigantic nuisance, viz., the Water of Leith.* Those remarks at the time excited attention and discussion, and we have been given to understand may have aided in leading to the Bill which has now been introduced into the House of Commons, under the name of the Edinburgh and Leith Sewerage Bill. The noble lord at the head of her Majesty's Government, while in Scotland last year, made the gentle pun we have quoted. We suspect, from the report we gave last week, that at this moment the joke expresses the state of feeling among the Edinburgh proprietors. We have not the smallest doubt, for example, but that most potent *à priori* reasoner, Mr. Henry Bowie, would rather see the Water of Leith run through—Hades, than through Edinburgh.

The ancient philosophers taught that no man should expect a reward during his life-time for speaking the truth. The process of disseminating knowledge is slow, and the obstructions are great. A generation or two must pass away before the most simple and elementary truth is recognised; and ages must elapse before we arrive at a full and true perception of the laws of the universe. One might imagine sometimes in these days, that our lot is better cast; that the progress of science is more irresistible; and that the relations of cause and effect are becoming closer and more evidently consequential. Alas! whenever we bring the breeches pocket into requisition, whenever we show a man that truth costs something which can be reckoned up in the current specie of the realm, we find a relapse all at once into the selfishness and stupidity of barbarism.

Here is a very good case in point. The Water of Leith, at this moment, is one of the common sewers of the city of Edinburgh. Once upon a time it was a picturesque mountain stream, growing out of the springs and rivulets of the Pentland Hills, meandering gently through the county of Midlothian, passing the northern outskirts of the romantic city, and finally reaching the estuary of the Forth through the Harbour of Leith. There is not a river in the country which turns the wheels of so many mills. Old inhabitants have caught trout in its limpid streams. Its richly-wooded banks have been the favourite haunts of poets and painters; and geologists have made its igneous rocks the basis of lofty speculations. But this picture of pastoral beauty no longer exists. The extension of the city, the increase of population, the growth of manufactures, the necessities, in short, of "modern civilization," have now reduced this pretty stream to the basest of uses. When we saw it last it was in a worse condition than the Thames; for it not only receives the sewage matter and refuse of probably 100,000 people, but it is also made the receptacle of all the horrible abominations which leak and ouse out of divers glue-works, paper-mills, chemical works, and gas-works; and, in particular, of the refuse from a gigantic distillery, which discharges enormous quantities of hot and acrid

* *Builder*, vol. xix. p. 421.

wash into its already polluted channel. The evils, of course, arising from all this are very conspicuous. In the first place, the indescribable combination of fumes and smells which proceeds from the water, in hot weather especially, is quite insufferable: secondly, the whole amenities of the river are destroyed: in the third place, the Harbour of Leith is converted, when the tide is out, into a huge, open, and seething cesspool; and, finally, the inhabitants along its banks suffer from an increased death-rate: in fact, the port of Leith, which suffers most, is never free from pestilence.

These things we pointed out as forcibly as we could at the time of our investigation. Our remarks, as we have said, excited some attention, and were on the whole received in the spirit in which they were made. But we added something more. The municipal councils of Edinburgh had for some years been perverted by certain members, whose darling ambition was to make the people of Scotland sober by Act of Parliament, and religious by restraining their liberty. To this end they turned Macaulay out of the representation of Edinburgh. To this end they got a Bill passed for shutting up the public-houses on Sunday. They did their best to excite the people of Edinburgh to revolt against the payment of their church-rates. They put a stop, among other improvements, to the restoration of the Mediæval cross which once adorned the High-street. But all this time the people continued as drunken and demoralized as before. It never seemed to occur to these fanatics that the question of public morals is inseparably connected with the question of public health; and that a Bill to purify the Water of Leith, for example, or the foul bourn, would have done more for the elevation of the people than a Bill to shut up all the public-houses in Scotland. Public opinion at length grew tired, and interposed; and, as it so happened, a few months after the publication of our article, in which we commented on their doings, these theologues were driven from power, and returned to the heap,

> ——"From whence they sprung,
> Unwept, unhonour'd, and unsung."

The town council of Edinburgh, as at present constituted, is, we believe, one of the most enlightened and liberal public bodies in the empire. Of course, it contains a sprinkling of the old leaven, but only a sprinkling. Mr. Charles Lawson, the lord provost, has already gained golden opinions from all sorts of people, for his mild and liberal administration; and he is ably supported by the provost of Leith, whose legislative qualities we are glad to recognise. One of the most important labours of the two councils, has been to concoct a measure for the purification of the Water of Leith. Without pledging ourselves to its details, we earnestly recommend the people of Edinburgh to examine it for themselves, and to see that the measure is not defeated through perversity and ignorance, supported by the interested opposition of the conterminous proprietors.

FRESCO PAINTING AND WATER-GLASS PAINTING FOR MURAL DECORATION.

IN the course of the discussion of Mr. Atkinson's paper, reported in our last number but one,—

Mr. R. N. Wornum remarked upon the statement of Mr. Atkinson with reference to the alleged durability of fresco painting, as illustrated by the Continental specimens to which he had referred. He believed that many of those pictures were not in reality pure frescoes, for true fresco painting was of a comparatively modern date, and many of the old oil paintings were of a date anterior to the frescoes. The Egyptians never painted in fresco; their pictures were all in tempera. The Romans and Greeks likewise never painted in fresco, though they used it for colouring their walls. All those nations painted their pictures in tempera. The plaster was very solid and hard, and the pigments were worked up with various materials, such as eggs, gum, and glue. The Egyptians used hippopotamus glue, and the Romans varnished their pictures with wax, which was burnt into the wall, and produced great durability. In the tempera pictures which had failed, the fresco colouring of the walls, which was the foundation of the picture, had not given way, but the pictures had fallen off, because they were not so thoroughly attached to the wall as the original fresco colouring was. With regard to the Italian frescoes, he believed there were but few specimens of the pure fresco extant; they were for the most part secco and tempera, and he believed it was only at Pisa that genuine old frescoes could be met with, the earliest of which were the production of Pietro d'Orvietto, dating at the close of the fourteenth century. Mr. Atkinson had dwelt upon the greater durability of fresco as compared with oil painting. That was not proved as yet, and certainly was not corroborated by the specimens of the art that were to be met with in many parts of Germany, particularly in Munich, where he (Mr. Wornum) resided thirty years ago, just about the period of the revival of fresco-painting; and on revisiting lately some of the most magnificent works executed at that time, he found that large patches had become destroyed. If it answered better in Italy he could only attribute it to the dryness of the climate, that of Germany having proved, in his opinion, unsuitable for this process of painting. There were in our National Gallery oil paintings of earlier date than most existing frescoes, many of them being still in a perfect state. With regard to the climate of this country there was not only the severity of the weather, but, particularly in London and larger cities, there were the smoke and dirt to contend against. In this country the surface of a picture must either be smooth, so as to allow of wiping, or else it must be protected by glass. It would not do to have a rough surface, because of the amount of dirt and soot that got into the crevices. It was far easier to keep an oil painting clean in this country than a fresco, inasmuch as the latter held more dirt, from its being of an uneven surface.

Mr. Armitage said that he knew of no better means of cleaning fresco pictures than rubbing them with stale bread, which removed the dirt most effectually. His fresco pictures in the Roman Catholic Church at Islington had not suffered in any way. He should like to hear any opinions with respect to the kind of sand to be employed. The so-called silver-sand was used in the Palace of Westminster, and while he was at work upon one of the frescoes there, a German artist who was present objected to the use of this substance, and recommended that powdered granite should be used, as the only material that would render frescoes durable. If, however, the Munich frescoes had all failed, it did not argue much in favour of the superiority of granite sand. He had not gathered from Mr. Atkinson what he considered to be the chief cause of the decay of fresco pictures. The deterioration in the frescoes of the Houses of Parliament was very deplorable, but at the same time there were other frescoes in London where that decay had not taken place. No one, however, had yet explained why this had occurred in one place and not in another.

Mr. J. M. Blashfield said that during the early operations at the Houses of Parliament, some inquiries were instituted with respect to the lime to be used for the frescoes. He received specimens of some of the various kinds of lime, and he found one or two contained traces of peroxyde of iron; moreover, upon an examination of the existing frescoes at Westminster, he had come to the conclusion that the lime used in them must have contained a small quantity of iron. He knew also that silver-sand contained a considerable quantity of iron, as he had used it very largely, and in some cases the quantity was so large that if the sand was placed over a fire it turned a pink colour. There were other qualities of sand which, before washing, looked dull and brown, but when washed and dried were very pure, and from such glass of excellent quality could be made. It was that sort of sand which he thought should be used for frescoes. The calcination of lime was a matter to which he thought too little attention had generally been given, and the sources from which the lime was derived also produced variations of quality. Some chalks contained from one to two per cent. of peroxide of iron, whilst in others the proportion was very small. All chalks which contained iron formed lime more or less hydraulic; lime which was entirely free from iron had no hydraulic character, and would never set under water. It was, therefore, an important matter to those engaged in fresco painting, that they should thoroughly understand the qualities of the lime they employed so as to produce the most durable work. The lime obtained from marble was somewhat porous when set. On examining a piece of mosaic from Pompeii, he was struck with the similarity between the fine mortar in which the small pieces of mosaic were imbedded and the ground of the frescoes there discovered. Both were porous, but very white and hard. It appeared to him that something like pumice or lava, partaking of the properties of the pozzolana of Italy, had been mixed with the materials, which had given a certain amount of porosity while it aided in the hardening of the lime, and formed the groundwork of the fresco, making it more ready to imbibe the colours. He had calcined Italian marble, and slacked it with great care; but it did not make a hard mortar. In his opinion, in most cases lime was not slacked properly for architectural purposes. When it was properly slacked and well kept, after four or five years it became so hard that it required great labour to bring it again into powder; but when carefully treated and laid on well with a proper quantity of sand, it would gradually dry without cracks, while new lime was sure to crack and blister. It was also most important that the bricks forming the wall should be well burnt, otherwise the salts left in them would be sure to find their way to the surface, and ultimately destroy the plaster. An instance had come under his own knowledge in which 20,000 bricks were burnt with only four tons of coals; whilst, in another case, no less than sixteen tons were consumed in burning 4,000 bricks. If the bricks were properly burnt, and if fine sand properly washed were used in the mortar, he had no doubt fresco pictures would possess the same durability in this country as that claimed for them in Italy.

Professor Kerr would venture to submit one other theory with regard to sand, which he believed was supported by the experience of very remote antiquity, viz., that the sand used should be stone-dust. Vitruvius, in describing the materials used in fresco, stated that the sand used was made by pounding stone-rubbish. The effect of that might not be apparent at first sight, but on consideration it would be found to be an important point. The use of sand in plaster was this—it supplied the strength of the substance, the lime acting as the cementing medium, connecting the grains of sand together. But the lime which connected the grains of sand together, was of itself a weak material, and liable to decay. It was simply carbonate of lime, divested of its carbonic acid by burning. Pure lime contained no carbonic acid; but if they mixed mortar with stone-dust, as was customary with masons for some descriptions of work—stone-dust instead of sand—the result was, that the lime absorbed the carbonic acid in the stone-dust, when it became restored to its natural condition of carbonate of lime, and the process of hardening went on more rapidly. He thought these considerations were of importance, as bearing upon the preparation of the groundwork for frescoes, with a view to durability.

Mr. J. G. Crace said, although he was a great lover of fresco painting, yet, from all he had observed, he thought he must come to the conclusion that it would be a waste of valuable artistic time to continue to carry on the practice of that art in this country. In recent visits to Italy he had paid very particular attention to this subject, and had noticed that in many of the frescoes which were executed by early Italian masters some 400 years ago, the colours seemed to be perfectly fresh, and the ground well preserved; but directly he quitted Italy, and came into more uncongenial climates, he found that all works of this character that had been carried out for some great length of time, were more or less injured; and he thought it was only under the influence of the peculiarly genial climate of Italy that fresco-painting could be carried on with safety. Of the paintings on walls exposed to the effects of the weather, perhaps the most remarkable were those of the Palazzo Doria, at Genoa, executed nearly 400 years ago. The figures appeared perfectly fresh and beautiful, and in no way seemed to have lost the richness of the colouring, nor did the lime surface itself seem to be acted upon. In those at Florence, which had been preserved by having been placed in the interior of the buildings, the colours seemed to be quite pure, fresh, and bright. He knew of no more beautiful example than that of Fra Angelico, which was but imperfectly represented in one of the chromo-lithographs exhibited this evening. It was most beautiful in colour, and simple in design and execution. He did not, however, know, through the whole of the North of Germany, in Switzerland, or in Belgium, a single example of a well-preserved fresco existing. Of late years, he believed, that style of decoration had not been attempted. In Cologne Cathedral, the results of its use were most melancholy. He would now say a word as to the various influences that were likely to injuriously affect any frescoes that

might be executed in this country. First of all, he would ask them to consider the external effects of our climate upon stone buildings. Look at St. Paul's, or any other great building which had existed for any length of time in London, and see what were the effects of the climate upon them. If this were so on a plain undecorated surface, how entirely would any painting with a variety of colours be destroyed. Then, again, there are influences operating behind the picture as well as on the front. If the lime were not well mixed, it would throw out an efflorescence which would cover the picture with a sort of mildew, similar to the effects that were to be witnessed in the Houses of Parliament; and if the sand was not of the right description, the work was sure to be injuriously acted upon. The question then arose, why should we be bound to adopt fresco? He thought the step now taken by the artists employed upon the Houses of Parliament was the right one, viz., the covering their pictures with a substance which produced a sort of vitreous surface not likely to be acted on by our climate. The water-glass process no doubt possessed many valuable qualities, but the difficulty was to find a surface which the salt employed would combine with properly. He believed the only surface yet known which united intimately with water-glass, was simple whitening; a lump of whitening, which would crumble in the fingers, if dipped into a solution of silicate of potash, became as hard as stone. As regarded encaustic painting, he thought the alternations of heat and cold of our climate would have a very prejudicial effect upon pictures executed in that style; and there was the further objection—that they could not cleanse wax paintings. Therefore, acknowledging, as he did, to the fullest extent, the beauty of the effects of mural painting, he felt that the great object to be attained was, to discover such a protective surface as would obviate the destructive influences which he thought at present precluded the employment of fresco in the arts of this country.

Mr. C. H. Smith said, the great objection to fresco, he thought, was its uncertainty—a small experiment might succeed whilst a large one might fail. Then there was the further objection—that real frescoes must always be copies from an original design. The artist could only prepare his materials for just as much work as he could accomplish in a day. Then, again, a pure fresco could not be retouched, and he would ask, was it possible for any artist to paint a large picture satisfactorily piece by piece? It would scarcely happen but that he would desire to retouch certain parts, and tone other parts differently: and besides, the effect of the colours when dry was very different from that produced when they were first laid on. He did not agree with Mr. Atkinson in the opinion that valuable works of art should be attached to a building so as to be irremovable. We were fortunate in having in this country many pictures in oil of great value, which we could not have had if they had formed parts of mural decoration. He entirely concurred with the views expressed by Mr. Blashfield as to the effects produced by salts and alkalies in imperfectly burnt bricks, and also in many descriptions of building stone. When bricks of that description were used in the interior of buildings, the effects were apparent upon the plaster, and the salts left in the imperfectly burnt bricks would penetrate through walls of great thickness. He thought this was the cause of the destruction of fresco more than anything else. The water-glass process, he thought, had not as yet been sufficiently tried to warrant its general adoption.

Mr. Purdie, as one who had made a considerable number of experiments with the various systems of fresco as well as with water-glass, begged to offer one or two remarks. Works of art painted upon walls, were subjected to two deteriorating influences; first, there was the condensation of vapours upon their surface; and, secondly, there was the damp from the wall behind them; and the more impervious the surface of a picture was, the more liable it was to be affected by the damp from behind. With regard to the various methods of fresco painting, Mr. Atkinson had described them as *buono* and *secco*, though the name of the latter was contradictory to fresco; then there was a third process, which might be termed the Pompeian fresco. It had been contended by one speaker that the Pompeian paintings were not frescoes; but from experiments he had recently had to make, he (Mr. Purdie) believed a great many of them were frescoes. The surface on which the pictures were painted was polished, but the picture itself was not so. It was supposed by some that the painting had been executed in wax, whilst others supposed it to be tempera. He forwarded a piece of the composition to the Museum of Geology, in Jermyn-street, and the result of analysis was that no trace of wax or other binding substance was found in it; there was nothing whatever but the pigment and carbonate of lime. The conclusion arrived at was, that the picture was executed before the lime was dry. With respect to the issue raised by the paper, whether or not it was desirable to pursue the art of fresco painting further in this country, he would not, at that late hour, enter into that topic; but he would remark that, whatever merit was claimed for frescoes was possessed in an equal, and even greater degree, by the water-glass process. That system had now been substituted for fresco by all the artists engaged in the Houses of Parliament with, he believed, the single exception of Mr. Dyce. The difficulties under which fresco decoration was carried out had been very aptly described by the last speaker, especially with regard to the difficulties of painting a picture in small portions from day to day. It was, indeed, very rarely that any artist could execute a satisfactory work under such circumstances. With regard to the fresco works of the old masters, he believed they had all been afterwards touched up in tempera.

The Chairman (Lord Elcho) said that, before moving the vote of thanks to Mr. Atkinson, which he should do with the greatest pleasure, he wished to make a few observations. When he was asked to take the chair on this occasion, he thought the best thing he could do was to endeavour to elicit the views of artists conversant with the subject; for what was really wanted was practical and technical knowledge on the process of fresco painting; and he believed he had gone to the very best sources for obtaining the most valuable information. He went in the first place to Mr. Watts, who sent him to Mr. Leighton; and, subsequently to that, he saw Mr. Herbert and Mr. Maclise; and he had before him letters from most of those gentlemen which would greatly interest those who had given attention to this subject. What they wanted to ascertain was, what was the proper material to be employed in this process, and what was not. Mr. Atkinson had pointed to the chromo-lithographic prints exhibited. These had been brought out by the Arundel Society, which had a good object in view; but, if he had been in Mr. Atkinson's position,—arguing in favour of frescoes,—he would not have pointed to those prints, inasmuch as the object of the Arundel Society was to preserve to after ages some feeble record of those great masterpieces of early Italian art, the originals of which were mouldering and fading away. So far from appealing to these prints as evidence in favour of returning to a process which Mr. Atkinson stated had been abandoned by the artists employed by the Government, he (the chairman) would point to those chromo-lithographs as reasons for not rushing to the conclusion that we could not, in the year 1864, find some better and more durable means of mural decoration. The tendency of the discussion was decidedly that fresco painting was unsuited for decoration in this country; but while they admitted that *fresco puro* was imperfect in itself, let them not on that account give up mural decoration altogether,—he meant high art on their walls,—till they were assured no good substitute had been discovered. He had before him a valuable little pamphlet by Mr. Gambier Parry, which showed that, while the most serious effects had been produced upon the frescoes at Mantua and other places where they existed in damp cloisters, yet in Egypt the colouring on the tombs of the Ptolemies was as fresh and bright as if only done yesterday. Whatever might be the merits of this process, however, it was clear, from the experiments made in the Houses of Parliament, that it was not suited to the climate of this country. But of this he was certain,—they must not on that account be discouraged from attempting mural decorations in the highest style of art; and there were artists in England now who acknowledged that a fitting substitute had been found in the water-glass process, which was well suited to our climate. He had had a most interesting conversation with Mr. Herbert on this subject. That gentleman told him he had nearly been driven mad by the trouble and annoyance which the old system of fresco caused him. He added that he never knew how his work would turn out, the colours being put on when the plaster was wet, in which state it remained for eight hours; and having finished a piece on one day, he had to wait till the next to see whether it was correct. But, in addition to this, there was another element of difficulty, that if the plasterer put a little more water into the plaster one day than the day before, although Mr. Herbert might use the same colouring, when it was dry the effect would be quite different. Thus, with respect to the small fresco of King Lear and Cordelia, which had stood the best (only one head having gone, owing to the uric acid from an adjoining room having trickled through and affected the colouring from the back), Mr. Herbert had cut out the head of Lear six times, and that of Cordelia five times, and there was no part of that picture which had not been cut out four times. From what he had said it was obvious that the plasterer must be as accurate in his work as the painter; and it sometimes happened that the painter and the plasterer were not on the best terms. It was a melancholy fact that Mr. Dyce's and Mr. Herbert's plasterers had each died mad; one raving mad and the other melancholy mad; and Mr. Herbert attributed this, in a great measure, to the effect of the constant worry these men were subjected to in their department of the process. He was gratified to find that Mr. Herbert expressed himself satisfied with the water-glass system. He had asked that gentleman to put upon paper his opinions generally on this subject, and he would now read the communication with which Mr. Herbert had favoured him:—

"I am quite convinced that, however true the theory of frescoes may be, the practice of it always has been, and will ever prove, next to an impossibility, if indeed any refinements or subtleties of art are attempted. I may be asked, have not the Italian painters left evidences to the contrary of this assertion? I reply, using the words of Vasari, that in his time there was but one 'true fresco in Italy,' and the melancholy condition of frescoes throughout the Continent shows further proof of Vasari's statement. Almost all the really great colourists of Italy abandoned it after a few trials, and the Michelangelos held up to us as marvels of fresco have long since been in a hopeless state of decay. The smallest work in genuine fresco, carried to any point of excellence without employing the fugitive mode of completion, *i.e.* vinegar and white of egg (so freely used by Italian painters), would be an achievement only to be attained by successive obliterations and waste of life. Fresco may do admirably well where a slight bravura sort of art is required, but this should be the *passe-temps* for those whose aim is very moderate, and whose employers are easily satisfied. Fresco has had a fair trial here, and is to give way before something a thousand times better in every way."

Mr. Maclise had written to him as follows on the subject of the water-glass process:—

"I beg leave to send you a proof of a report I made to the Royal Commissioners of Fine Arts, the late Prince having wished me to repair to Berlin to see the process and performance of the stereochromic method, as practised by Kaulbach and others. You may not have leisure to look over the report, and therefore I must only ask you to receive the very latest intelligence on the subject of my daily practice. This practice with me is one of the utmost simplicity,—I may say I have had a kind of pleasure in so simplifying it. On this fair tablet of 40 feet of pure plaster, spread at once, I paint in colours ground with pure water, my only vehicle being distilled water, and this simple proceeding (being, indeed, the process of fresco secco) becomes nearly indelible by the mere fact of the colours being absorbed. This true water-colour painting (and what is called water-colour is in fact gum colour) becomes permanently fixed by shedding over it a spray of water-glass through a syringe. The advantages of this method over that of fresco are obvious. The coueh of plaster is spread at once over the whole surface, and not laid in piece by piece—each day's work to be painted on while fresh, to secure fixation. This old piece-meal process makes the work a kind of mosaic, and in a complicated design becomes a miracle of intricacy in its joinings, and, although a misery to the painter, is a perfect triumph to the plasterer. In the new process we can proceed, if we like, with as much freedom as we approach a canvas, no cautious and cowardly preparation of sketches, and the cartoon to be punctured or styled on the wall and slavishly copied, whereby the vigour of the cartoon is lost, with nothing to compensate for it. As regards my own practice just now, I may reply to your inquiry, which is in itself a flattery, that although I have made a careful design of the subject to be painted in this place, yet I need not have done so, and as it is, I paint direct on the wall constantly from models of all sorts, sailors, marines, guns, tackle, ropes, blocks, and my hoarding is a kind of museum of marine stores, for which, indeed, I am originally indebted to your Lordship in having mediated for me, at my request, with the Secretary of the Admiralty, by whose favour I have secured attention at the War Office, and stirred up all kinds of sympathies at Woolwich and Greenwich. To get Nelson's coat from its glass-case in Greenwich Hall to my house in Chelsea, where I could do justice to the details of its buttons required, I do believe, the intervention of the whole Board of Admiralty with the Governor. Dr. Hofmann said that the water-glass spread over the picture ought to effloresce as a proof of its efficacy. I should prefer this not to take place; perhaps your Lordship may be able to learn something about it."

They had thus high testimonials in favour of the water-glass system, which it appeared had stood the test of a good many years. The examples of this process at Munich had stood while the frescoes had faded. The chairman then went on to state that he had received no written communication from Mr. Watts, than whom, however,

no man had more enlarged views of art, or more devotion to fresco-painting. In proof of that, he might mention that Mr. Watts, during the time General Anson was chairman of the London and North-Western Railway Company, offered to decorate in fresco the large hall at Euston Station, the company only bearing the expense of colours and the necessary scaffolding. That offer was not taken advantage of; but the liberal spirit of Mr. Watts met with a more ready response in the case of the hall of Lincoln's Inn; and, when the work was done, the benchers were so struck with the handsome conduct of Mr. Watts that they voted him a sum of 500*l*. No man had done more for fresco painting than Mr. Watts; and that gentleman had sent him to Mr. Leighton for information with regard to the new process of mural decoration discovered by Mr. Gambier Parry, who, however, was not himself a painter, but had employed Mr. Leighton to execute the decorations of a church at Lyndhurst, in Hampshire. Mr. Parry had published a communication in the *Ecclesiologist*, and the extract he would read from it he believed would be interesting to the meeting:—

"To meet all the requirements of wall-painting (where the walls are dry) with little risk of injury from the action of our climate, avoiding the objections to other systems, and retaining all that is good and effective in them, I recommend the following scheme. Take a medium composed in these proportions:—

Pure bleached wax	3 ounces	by weight.
Elemi resin	1 „	
Oil of spike lavender	6 „	liquid measure.
Finest preparation of artist's copal	18 „	

which shall be used thorughout from the first preparation of the wall to the last touch of colour laid upon it, that the whole mass may be perfectly homogeneous. All colours are to be ground up in it, and may be kept in tubes, as oil colours are, or in any other way. The same composition diluted in *twice its bulk* of rectified spirits of turpentine makes the liquid with which the pores of the wall are to be saturated by copious washes. The number of these washes must depend on the absorbency of the wall surface; and the more absorbent that be the better. The last wash should be mixed up with:—

Best gilder's whiting well washed and baked dry	3 parts *in bulk*, not in weight.
Flake white ground (as usual) in water and perfectly dry	1 part, ditto.

to the consistency of thin cream; the surface should be well covered with it; indeed, in most cases, two coats of this are better than one. Common rough wall plaster will take two doses of the transparent wash, and two with the opaque white. Each wash should be allowed twenty-four hours to evaporate. The object of these washes is to key the prepared surface deeply into the pores of the wall with a material which dries in them as hard as stone, and leaves a surface white, solid, absorbent, and of a good texture for painting. When the cartoon is traced on the wall, let a part of a design be chosen enough for a day's work, and washed over thinly with oil of spike or highly rectified turpentine (the former is better, being a stronger solvent of the copal), the object being to open the surface which will then be painted into, and dry in one solid mass, by the evaporation of the volatile oils. The wash should be lightly applied before the palette and colours are prepared for the day's work; the time thus employed will allow the surface to dry just sufficiently to let the paint be applied without dragging up and mixing with it.

The vehicles for painting in which the brush should be dipped must be either the same as the wall wash, only twice as much diluted, or oil of spike alone; or, when the cost of the spike oil is an objection, highly rectified turpentine. The surface dries gradually, not skinning over, as oil colours do, but equably throughout by evaporation."

On this subject Mr. Leighton had written to him as follows:—

"As I am, to the best of my belief, the only professional painter who has worked with Gambier Parry's spirit fresco, it may be convenient to you to refer to my unfinished works at Lyndhurst. I therefore send you two or three details which may interest your audience. The merits of the material are chiefly these:—Great similarity of result to buono fresco, which it approaches so nearly as to deceive any one not conversant with the practice of painting. Great scope of colour, as it embraces the whole oil palette, and is not subjected to any of the limitations which are peculiar to fresco. Great facility of manipulation, admitting of washes, impasto, and glazing within the space of a very few hours. Little or no change in the drying, not more than in water-colour drawing, on absorbent sketching paper,—Harding's, for instance. Facility of re-touching, as the surface is always soluble in spirit, though proof against water. The only point in which it is inferior to real fresco, is in the absence of that pure crystalline quality of light so peculiar to the latter. On the other hand, it has, in a great degree, that other quality of fresco which is the alpha and omega of all grand monumental work—gravity—dignity."

The Chairman added that he had ventured to call the attention of the meeting to these letters because they showed there were other means of painting, which artists of great distinction believed to be safe and satisfactory, and by means of which great works of art for decorative purposes might be executed without fear of decay. He thought the subject of such vast importance that he hoped this meeting would give attention to the excellent suggestion of Mr. Atkinson, that some committee should be appointed to inquire into the subject. The committee appointed by the Government had ceased their labours; but there still seemed to be so much doubt on this question, that it would be a pity that fresco painting should be abandoned without a full and fair inquiry. He would therefore enforce, as far as he was able, the suggestion that this society should appoint a good practical committee, in conjunction with the Institute of British Architects, the Royal Academy, and other bodies, who might go carefully into the subject.

THE SHAKSPEARE TERCENTENARY.

THE Crystal Palace Directors intend commemorating on the 23rd of April. For some months past Mr. E. T. Parris has been engaged at the Palace on an exact reproduction of the exterior of Shakspeare's house at Stratford-on-Avon, to be placed on a large stage in the centre transept of the Palace, and around and about which the entertainments on the 23rd of April will take place. This counterpart of Shakspeare's birth-place will be more than 60 feet wide. It is also intended to make within the house an exact full-sized reproduction of the room in which the poet was born, and of the room below, and to place there such interesting and authentic Shakspearian relics as have already been lent, or will hereafter be intrusted, to the Directors of the Palace.

The Stratford-on-Avon fund in aid of the local scholarships and monumental memorial is now accumulating. Parchment lists of names, addresses, and amounts will be bound up and deposited in the poet's birth-place, as a "census" of his admirers in the tercentenary of his birth. The subject of lodging visitors during the festival has received serious attention, and the following resolution has been adopted by the local committee:—"It having come to the knowledge of the committee that persons desirous of letting lodgings during the period of the Tercentenary Festival are expecting to demand prices of such a nature as to do infinite mischief in deterring strangers from visiting the town, the committee feel bound to express their strong disapprobation of such a course, and to adopt such measures for the registration and letting of lodgings as will conduce to their benefit on reasonable terms, and that further arrangements shall be made for running trains to neighbouring towns where accommodation may be obtained on reasonable terms." The Monumental Memorial committee now includes the Earl of Carlisle, K.G., and Messrs. Theodore Martin, Alfred Tennyson (poet laureate), Gambier Parry, John Ruskin, and Robert Bell.

The Birmingham commemoration is said to be receiving continual accession of support. The original Birmingham Book Club (now nearly two hundred years old), proposes to contribute some valuable Shakspearian volumes. Messrs. Day & Son, of London, the publishers of the photo-zincographic facsimile, the first collected edition of Shakspeare's plays, have promised a copy of their forthcoming excellent work. It is intended to provide a handsome volume, to be preserved in the library, in which the donors—the founders of the first Shakspeare library—shall be invited to sign their names. As the library—being associated with the free library—will be open to the public, the committee reasonably expect that small subscriptions will be forthcoming, as well as the higher sums hitherto received.

Manchester, without a definite programme, has raised 1,000*l*. towards a local commemoration.

At Liverpool the mayor will give a Shakspearian fancy dress ball, in the town-hall, on the 21st of April, and throw open the theatres on the evening of the day following. The general committee formed in Liverpool to manage the commemoration, have resolved that "A fund be established in Liverpool for the relief of authors, actors, and literary men."

At Bristol, there seems to be a desire to have a celebration of some kind. Following up this desire, Mr. Sholto Hare has addressed a letter to the public press, suggesting that a permanent memorial be erected in some public situation in Bristol, and that there be a public banquet and a fancy-dress ball, the adoption of Shakspearian characters to be observed at the latter. Mr. Hare also states that he has received a communication from Mr. A. C. Ponton, of the Bristol Society of Architects, recommending the erection of a theatre at the top of Park-street, or providing a marble bust for the Academy of Fine Arts, rather than send money to distant places. One of the local papers suggests that the "permanent memorial" mentioned by Mr. Hare take the form of a Shakspearian scholarship to be established for the pupils of the Clifton College and Bristol Grammar-school, and that the 23rd of April might be celebrated publicly by a Shakspearian performance at the Theatre, a concert of Shakspearian music at the Victoria Rooms, and a fancy ball.

The printers of Newcastle are bestirring themselves, in order to do honour to the memory of one to whom their craft is so much indebted. A committee has been formed, who intend to communicate with the trade in general, including bookbinders, engravers, lithographic printers, &c., as to their willingness to join in the demonstration.

Mr. W. Perry's Bust of Shakspeare, carved out of a portion of Herne's Oak, will be remembered by some of our readers. Her Majesty the Queen ordered a duplicate of it, and we are glad to hear that the Prince of Wales has just now directed the carver to produce one for him.

Shakspeare Memorials.—A correspondent suggests that Shakspeare's descendants should not be forgotten on the present occasion, but that endeavours should be made to place them in a good position.

THE NEW ZEALAND EXHIBITION, 1865.

THE commissioners have fixed upon the first Tuesday in January, 1865, for opening the Exhibition. The Exhibition building, with such annexes as may be necessary, will be erected in the city of Dunedin, province of Otago. It will be of brick and cement.

Subject to the necessary limitation of space, all persons, whether designers, inventors, manufacturers, producers, or possessors of articles of New Zealand origin, or of such others the produce of other countries as may in the estimation of the commissioners be eminently calculated to aid in the development of the colony, will be allowed to exhibit; but they must state in what character they exhibit.

The commissioners will communicate with New Zealand exhibitors only through the local committees of their respective provinces, and with those of neighbouring colonies, of Great Britain and Ireland, and of foreign countries, either through the agent in London or directly through the secretary in Dunedin.

Every article produced or obtained by human industry, whether of raw materials, machinery, manufactures, or Fine Arts, will be admitted to the Exhibition.

Juries will be appointed, and certificates awarded in all the classes but that of Fine Arts.

LEEDS NEW INFIRMARY.

WE now add to the illustrations we have already given of the large Infirmary about to be built in Leeds,* the East Elevation of the building; a longitudinal Section, looking west; the plan of part of the ground-floor, and details showing the system of ventilation, to some extent explained in the particulars we have already published.

The following shows the appropriation of the various rooms:—

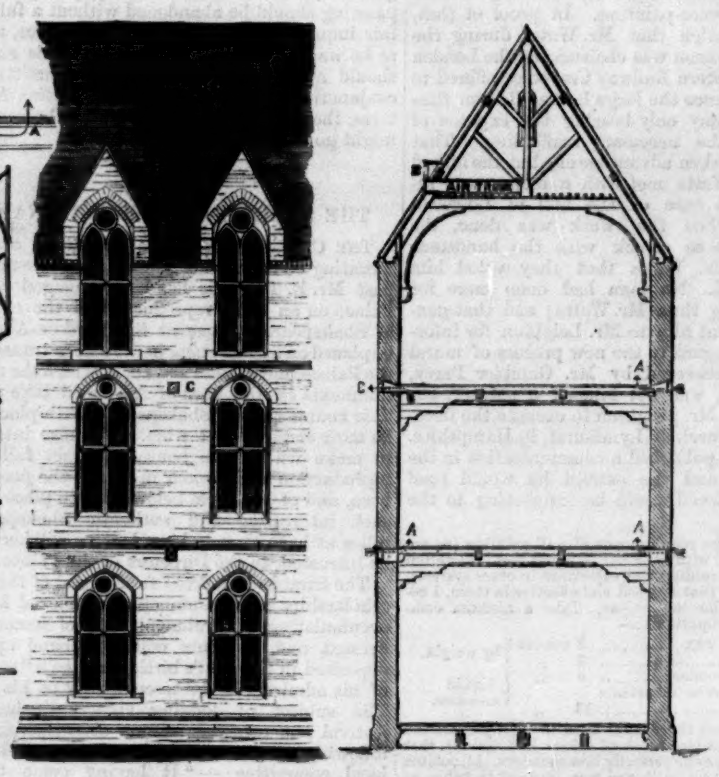
REFERENCES TO PART OF GROUND PLAN.

A. Entrance-hall.
B. Porter's room.
C. Sitting-room for assistants.
D. House surgeon's sitting-room.
E. House surgeon's bedroom.
F. Out patients' waiting-room.
G. Physician's room.
H. Surgeon's room.
I. Surgeon's private rooms.
J. Dressing-rooms.
K. Women's retiring-room.
L. Bath.
M. Mattress-room.
N. Dispensary.
O. Lavatory.
O*. Men's retiring-room.
P. Library.
Q. Students' waiting-room.
R. Nurse.
S. Accident-room.
T. Offices.
U. Bed-rooms for assistants.
V. Common dining-room.
W. Bed-room.
X. Sitting-room, matron.
Y. Stores.
Z. Open courts.
a. Pantry and larders.
b. Servants' hall.
c. Stores.
d. Scullery.
e. Kitchen.
f. Bread.
g. Bakehouse.
h. Flour.
i. Linen.
j. Lifts.
k. Coals.
l. Museum.
m. Dead-house.
n. Post-mortem room.
o. Engine-house.
p. Corridors.
q. Cellars.
r. Coals.
s. Beer and wine.
t. Wine.
u. Wood.
v. W.C.s.

ICE MANUFACTURE IN INDIA.—An ice machine has been erected in the Peninsular and Oriental Company's dockyard at Bombay, which can make three tons of ice daily.

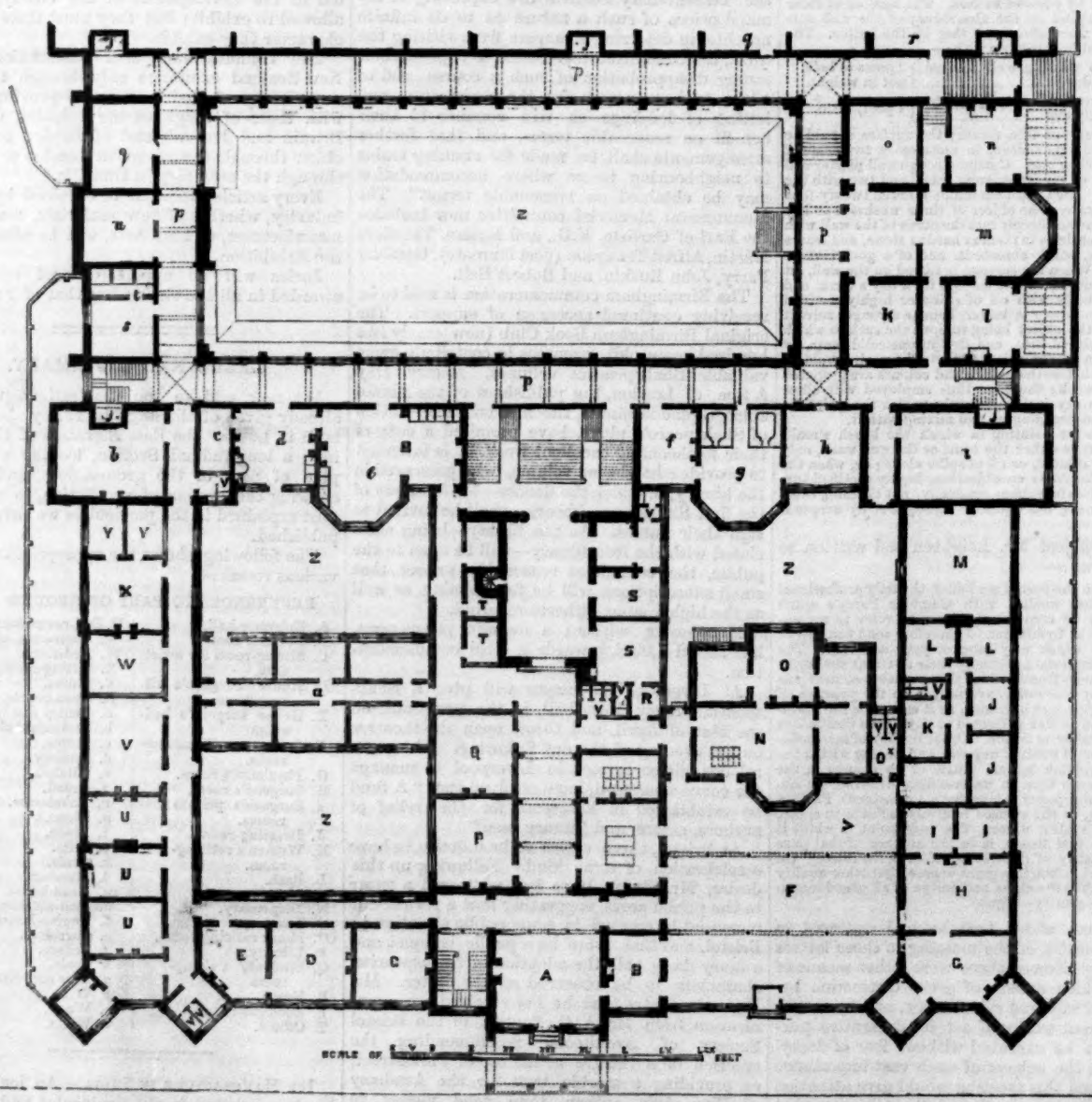
* See p. 115, *ante*.

EXTERIOR & INTERIOR ELEVATION AND SECTION OF WINDOWS TO WARDS ON FIRST FLOOR

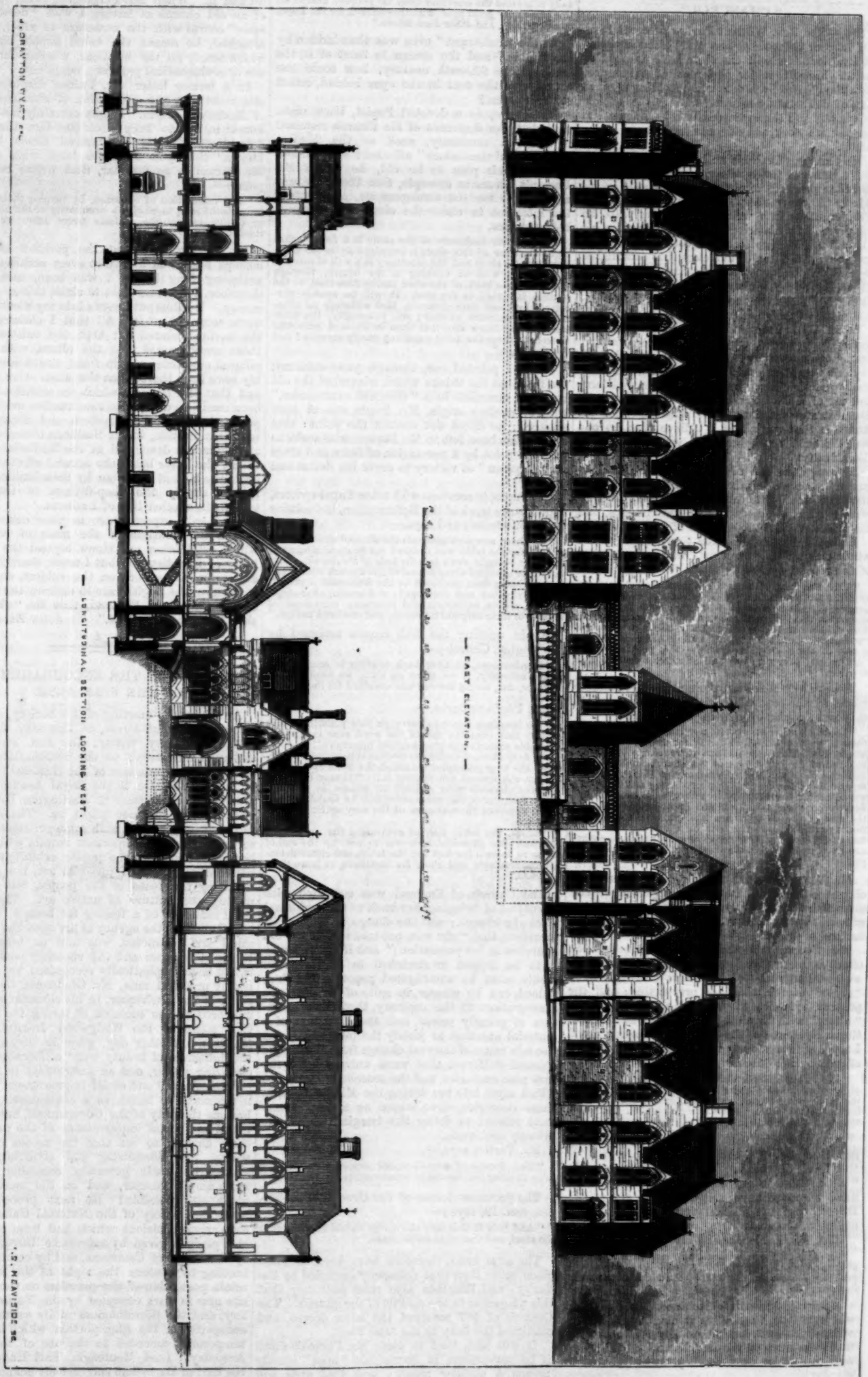


GENERAL ELEVATION AND SECTION THROUGH WARDS

A. VALVE — B.C. OPENINGS FOR VENTILATION



NEW INFIRMARY, LEEDS.



NEW INFIRMARY, LEEDS.—MR. G. GILBERT SCOTT, R.A., ARCHITECT.

"CHANCELS."

SIR,—The Rev. William Purton presents himself in your columns as one well versed in architectural lore: he will therefore have no right to shelter himself under the plea of ignorance, from the charge I am compelled to bring against him, of deliberately misrepresenting the author he quotes, and the examples he selects from Mr. Fergusson's work, as evidences against my statements.

He trumpets forth his authority, as "an architect a hundred times better known" than I am, and then proceeds to claim him as wholly on his side in the controversy; whereas, nearly all that Mr. Fergusson has written, and every plate he has given, at all bearing on the question, in his "Handbook of Architecture," confirm my views and present a chain of evidence that establishes beyond the shadow of a doubt the fact, that in all really ancient churches the chancel was simply a shallow recessed platform for the reception alone of the presbyters and their president.

When Mr. Fergusson's book appeared, I scanned its pages carefully, to see whether, among the numerous examples he had collected, any one exception could be found to what I had many years before proved to be the normal form and use of a Christian church; and I can now demonstrate that there is no single adverse instance in that work, and I believe that no one ever did exist throughout the whole domain of Christianity.

Although, in one or two instances, Mr. Fergusson has erred in mixing up in one description arrangements due to different periods of time, he gives the key to the causes of the changes, and his plates contain the solution of the difficulty.

I should like to transfer to your pages the whole chapter on "Basilicas," but the substance of the remarks is,—

"That the form of church government was long unsettled; the most respected individuals of each isolated congregation being selected to form a council to advise and direct their fellow-Christians; and the elected president of those thus chosen, gradually obtaining power at the cost of his fellows, and the whole order at the expense of their original equals,—the people; whose 'delegation,' however, was still admitted to be the title to office."

The ancient basilicas offering the most suitable model for the original constitution of the church, they were copied exactly in form and use.

"These arrangements were not long allowed to continue as we have described them; for the now dominant hierarchy of Rome soon began to repudiate the republicanism of the early days of the church, and to adopt from the East the convenient doctrine of the absolute separation of the congregation into clergy and laity. To accommodate the basilicas to this new state of things, first the apse was railed off and appropriated wholly to the use of the clergy; then the whole of the dais or raised part in front of the apse on which the altar stood was separated by pillars, called *cancelli*, and in like manner given up wholly to the clergy, and not allowed to be profaned by the unordained multitude."

Mr. Fergusson thus concurs with all ancient church history in assigning the cause of the changes he describes to the conceit and ambition of ministers seeking to be priests *to* their fellows, instead of priests *with* them.

Mr. Fergusson's plates demonstrate that the changes made in the old basilican churches were subsequent to the ninth century. The "style" of the additions proves this; and the present evidence of a stone tomb, called an "altar," with its pillars and canopy in front of the ancient seat of the president, affords a proof, I repeat, that no one but Mr. Purton can think of gainsaying. He says:—

"The bishop's throne was usually quite elevated enough (I know an instance where it was raised *ten* steps above the floor of the bema), and the altar and *cancelli* quite low enough to admit of his being both seen and heard, though sitting behind the altar."

Ten steps, Mr. Purton! Why, twenty would not have brought the "bishop," so seated, to the level of the top of the cupola over the "altar;" and to get a peep at his people in the nave he must have called in the aid of Mr. Home's spirits to lift him right up to the coved ceiling of the apse.

With inimitable coolness Mr. Purton adds:—

"In most of the churches mentioned in my last, the altar *does* stand, and therefore *could* have stood, and probably *did* stand at the first, in the centre of the bema, in front of the bishop's throne."

Mr. Purton knows, quite as well as I do, that wherever the "altar" now stands as he describes, the seats behind are never used, except in the instance of the installation of the Pope, and cannot be used as they were built to be employed.

Mr. Welby Pugin, describing the existing state of old St. Peter's, says,—

"The back of the altar is turned towards the nave, with a cross and candlestick upon it, and must have effectually concealed the celebrant from the people: behind all this is seen the great apse, with the *cathedra* for the Pope, mosaic ceiling, and other decorations."

As the "celebrant" even was thus hidden by the "altar," and the screen in front of it, the work of the fifteenth century, how could the occupier of the seat in the apse behind, either see or be seen?

Mr. Pugin, as a devoted Papist, knew right well that the doctrines of his Church required a screened sanctuary, such as the Mediæval "transubstantiators" afforded; and, anxious to prove this plan to be old, he quotes Mr. Purton's favourite example, San Clemente, and adduces its modern arrangements, as proofs of the intention to make the chancel a screened holy of holies.

"The marble enclosure of the choir is 4 feet 6 inches high: the floor of this choir is two steps above the nave. Between this choir and the sanctuary is a wall of marble, 6 feet high, with an opening in the centre, through which only the back of the altar can be discerned, as the basilica is turned to the *west*. It will be readily perceived by these arrangements, that although no ornamental screen-work existed; yet, practically, the sanctuary is far more shut out than in Pointed parochial churches, where the solid panelling rarely exceeds 3 feet 6 inches high."

When I pointed out, through your columns, the fact that the things which converted the old basilican churches into "screened sanctuaries," were of modern origin, Mr. Pugin was at once silenced: he dared not contest the point: that honour has been left to Mr. Purton, who seeks to gain his point by a perversion of facts, and sings an "Io pæan" of victory to cover his defeat and retreat.

Mr. Pugin, in common with other Papal writers, deplores the work of the Reformation, but admits its effectiveness; and says,—

"By these new arrangements the chancel was rendered useless, for the table was ordered *not to stand altarways*, but to be brought *down into the body of the church*. Thus the whole mystical arrangement of the ancient buildings" (only existing from the tenth to the fourteenth century), "were violated and destroyed; and screen, altar-steps, reredos, sedilia, sacrarium, and sanctuary, were deprived at once of their original intention, and rendered useless."

Again, quoting the fifth reason assigned by the English Church;—

"Furthermore, an altar hath relation to sacrifice, so that of necessity, if we allow an altar, we need grant a sacrifice, &c., seeing the one was ordained for the other,"

Mr. Pugin remarks,—

"No language can be clearer on this point; and it is evident that even the use of the word altar is scarcely allowable according to true Anglical principles."

"A deep chancel, under the present system, is an absurdity: the very principles on which the Book of Common Prayer was framed are against it." "It may be urged that the chancels were ordered to remain as in times past: true, but in this same order will be found a clause which deprived them at once of the very spirit of their existence."

"Again, the usual plan of converting the conventual churches into parochial ones was to wall up the end of the nave, leave a few feet for the table, and either demolish the transepts and choir for materials, or leave them to decay."

The Church of England was reformed with the object of bringing her back to the scriptural ideal of a church; and the charge is quite true, therefore, that "she was not made to fit the old churches in her possession;" and if Christianity is to be lopped or stretched to fit them, the result must be unmitigated popery. Nothing, indeed, can be clearer, in spite of Mr. Purton's asseverations to the contrary, that the assumption of priestly power, and the invention of a material sacrifice to justify the pretension, was the sole cause of the vast change from the temple chancel-platforms that were universal for the first nine centuries, and the screened sanctuaries which came into use during the Middle Ages, in those countries *alone* where no ancient precedent existed to fetter the imagination of the priestly architects.

Mr. Purton says,—

"The decree of council in 567 simply permitted the laity to enter the chancel to communicate."

The previous decree of the Council of Laodicea, can. 19, says;—

"And it is fit that only the clergy should enter in unto the altar, and there to communicate."

The altar must, therefore, have been in some place other than that ordinarily occupied by the clergy; and Eusebius says most distinctly that this place was in the middle of the church. The Council of 567 reversed the latter decree, and admitted the laity to the *table* itself.

It will also tend to clear Mr. Purton's mind if he remembers in future that "apse" simply means a circular recess; and that apse and chancel are, in the old basilican churches, convertible terms simply because the "bema," or platform, stood generally in a recess of the apse kind, for the convenience of arranging the seats around it. When Mr. Fergusson, then, speaks of an old church as having a well "developed apse" coeval with the structure to which it is attached, he means the usual simple chancel which nearly all the basilicas, whether for civil use or ecclesiastical purposes, contained.

In a former letter Mr. Purton disputed my statement that the orientation of churches was of Mediæval origin. It was certainly not very honest in him to keep back the fact that the "architect who is a hundred times better known" than poor I, in the book with which Mr. Purton is so familiar, thus writes on that point:—

"The orientation of churches, by turning their altars towards the east, is wholly a peculiarity of the northern or Gothic races: the Italians never knew or practised it."

Mr. Purton says that the position of the bishops' seats was known to every architect and antiquary long before I was born, and that, therefore, I have no right to claim this as a discovery. He thus puts words into my mouth that never came out of it. All that I claimed was the having pointed out that the existence of these seats proved that the altars, with their pillared ciboriums now in front, could not possibly have been there when the seats were used; and that the style in which the additions have been made, as well as the constructive evidences, prove them to be all modern and clumsy attempts to imitate, in the Basilican churches, the arrangements developed in the Mediæval structures; the latter being the natural effects of the doctrines held at the time by their builders, the former simply the shop-fittings of the new tenants in another line of business.

I can only expect space in your columns to give a bare outline of the mass of evidence which establishes my views beyond the possibility of fair dispute; but I trust, shortly, to be able to publish a work on the subject, and then to petition the Legislature to enforce the decree of the Church of England, that the "chancels shall be as in times past."

JOHN ELLIOTT.

SOCIETY FOR THE ENCOURAGEMENT OF THE FINE ARTS.

AT the weekly meeting of this Society, at their Rooms, in Conduit-street, on Thursday, the 18th inst., Mr. Henry Ottley, the hon. secretary, delivered an address on the contemplated surrender of the premises of the National Gallery, in Trafalgar-square, to the Royal Academy, and removal of the former to Burlington House, or elsewhere, as the case might be. The speaker introduced his subject with some preliminary observations on the important results which had been obtained from the public exhibition of the national collection of pictorial art, not only in elevating the taste of the people, but in promoting the culture of native art. The beneficial influence of a feeling for beauty, as conveyed through the agency of art upon the human mind and character, was now no longer the theme of the poet and the visionary enthusiast; it had been emphatically recognised by an eminently practical man, Mr. Gladstone, the Chancellor of the Exchequer, in his eloquent address, delivered on the occasion of laying the foundation stone of the Wedgwood Institution, at Burslem, the other day, when he declared that this influence of beauty was "a liberalizing and civilizing power, and an instrument in its own sphere of moral and social improvement." Was it too much to insist, as a consequence, that it became the duty of the Government, having the moral and social improvement of the people in their charge, to see that the means of cultivating this liberalizing and civilizing power should be made generally available in the most ample manner, and on the most convenient site possible? He next proceeded to trace the history of the National Gallery, and the various decisions which had been come to, and pledges given by successive Governments, by the House of Commons, and by commissions, tending to confirm the right of the nation to retain possession of the premises on the eligible site now in part occupied by the National Gallery, and the desirableness of its assuming the occupation of the other portion, which had been temporarily conceded to the use of the Royal Academy. Lord Monteagle, Earl Russell, and the Earl of Derby had successively acknowledged this right, and the expediency of insisting upon it in the interests of public convenience. The Royal Commissioners of 1857 had reported in favour of retaining the National Gallery on its

present site, chiefly on the ground of "its accessibility to the public;" and the President of the Royal Academy had recognised its advantages in that respect, when he made it the ground of claiming it for the latter establishment, which was supported by the shillings of the public, which he alleged could not be obtained in the same numbers in any other less "accessible" site. As a further illustration of the fact, he might mention that on Whit-Monday in last year, upwards of 10,000 persons visited the National Gallery in Trafalgar-square, whereas on the three public days in the same Whitsun week the South Kensington Museum, with all its varied attractions, artistic, industrial, and scientific, and open as it was, day and night, was visited by only 12,000 persons, being an average of 4,000 a day. The long negotiations which, during many years, had been had with the Academy, with the view of inducing them to surrender, with some show of grace, premises to which they had no "legal," if even a "moral," title, was very nearly brought to a satisfactory issue by Mr. Disraeli in 1859, and under conditions very liberal and satisfactory to that body; but some stipulation put forward on the part of the latter as to the terms on which they would consent to take a proposed grant of land on the Burlington House estate, interposed to delay the completion of the arrangement, until a change of ministry occurred, which threw the whole matter into abeyance. He next showed how, from absolute want of room in its legitimate home, large portions of the national collection, being those of the British school, had been moved about from Marlborough House to Brompton, and some of them (the Turner collection) to Trafalgar-square, at a great expense. The protracted delay on the part of the Government in making proper provisions for the national collections, was not only a dereliction of public duty, it implied a disrespect for public opinion in a matter in which their personal feelings were deeply concerned, which no minister in any other country in Europe would have dared to commit. And now, in spite of the repeated promises of successive Governments, in spite of the oft and strongly declared opinions of Parliament, in spite of the decision of the Commission of 1857, the national collection was again threatened with ejectment. Mr. Cowper, the Chief Commissioner of Public Works, late in the last session of Parliament, announced that Government had under its consideration a plan for the removal of the National Gallery to Burlington House. There was one circumstance, he must observe, which made this case more suspicious, and the danger more hazardous than on any former occasion; namely, that the National Gallery, and the people's interest in it, were deserted by some who had during many years been their persistent champions. Lord Elcho and Mr. Danby Seymour, who as recently as 1858 had openly proposed, in the House of Commons, to give the Royal Academy "notice to quit," were now as warm in the support of the Royal Academy, with the provision of adding "a lay element" to it, which those gentlemen would probably help to supply,—and, with this new notion in their heads, were now for giving the National Gallery "notice to quit," a suggestion which her Majesty's Government, rescinding all that previous Governments had done and said, seemed disposed to carry out. He concluded, therefore, by calling upon his hearers, and upon the public at large, to be on the alert in this matter, and to be prepared to make such vigorous representations in regard to it to the Government and to the Parliament, as should prevent this scheme from being realized, and effectually, once and for all, establish the National Gallery in full possession of the premises purchased for it by the public moneys, with such extensions and modifications as might be found necessary for the worthy exhibition of the people's treasures of art.

A discussion followed, in which Mr. F. Y. Hurlstone, Mr. J. Stewart, Mr. W. C. Dutton, and others took part.

THE LATE WILLIAM HENRY HUNT, ARTIST. — Some five or six years since, there was a party of artists at the house of Richard Ansdell, and the conversation turned for a time on some admirable drawings by Hunt. He was familiarly and affectionately spoken of as "Old Billy Hunt." Mulready was present, and remarked, "You call him 'Old Billy Hunt;' why I gave him his first lesson in drawing." This fact may be useful to a biographer.—Z.

THE STRATFORD GRAMMAR SCHOOL.

AT the moment of going to press, we received a communication signed "T. B. Medwin, head master of the Grammar School, Stratford-on-Avon," combating the observation made in our pages as to occasional difficulty of access to the school.* Mr. Medwin maintains that the number of interruptions has forced him to adopt the course he has pursued. The conclusion of his letter will be found satisfactory:—"I am very unwilling to admit a relaxation of the rule, unless I am assured, by the presentation of a card or a note, that the person applying for admission would, in case of refusal be put to inconvenience, or compelled to leave the town without seeing the architecturally, as well as archæologically, interesting interior of the edifice in which the world's poet '*sudavit et alsit*,' while employed in acquiring his 'small Latin and his less Greek.'

The suggestion which accompanies the statement to which I have adverted will not be lost upon us, and I vouch for it, that every facility for inspecting the Rooms of our Grammar School will be afforded during the whole time of the Tercentenary celebration."

THE ARCHITECTURAL ASSOCIATION.

THE ordinary meeting of members was held on Friday, the 19th inst., at the House, in Conduit-street.

The chair was occupied by the President, Mr. T. Roger Smith.

Mr. J. Gerand, of 2, Osborne-place, Markland Park, and Mr. W. Patterson, 123, Camden-street, Camden Town, were, on ballot, elected members of the Association.

Mr. J. D. Mathews (hon. secretary) read a letter from the Vice-President, Mr. R. Phené Spiers, tendering the resignation of his office in consequence of his prolonged absence abroad.

The Chairman stated that the committee had received the intimation of Mr. Spiers's resignation with regret, and that they were prepared to recommend the election of Mr. Henry Christian as vice-president in his stead.

The following appointments were then made by ballot:—Mr. Mathews, treasurer; Mr. L. W. Ridge and Mr. John Webber, members of the committee.

The Chairman announced the names of the gentlemen who had passed successfully the late architectural examination, and observed that it was a subject of much satisfaction to the Association, that all the London candidates who passed were members of their body.

The Secretary announced that, in consequence of indisposition, the gentleman who was to have read a paper that evening "On Figure Drawing," was unable to do so. Mr. Ridge had, however, on very short notice, offered to read some notes "On Westminster Abbey," which would be accompanied by the series of drawings of the Abbey executed by Mr. Tarver for the Blomfield prize.

Mr. Ridge then proceeded to read some notes which he had made of the visit of the members of the Association to the Abbey, on the 28th of June, 1862, on which occasion they were accompanied by Mr. Gilbert Scott. He also read extracts from Mr. Scott's work, and explained, with the aid of diagrams, the principal features of the building. He expressed himself doubtful as to whether the architect ever intended that there should be a central tower, and observed that an isolated tower for bells formerly stood close to the main building. The cathedral itself was a short church for the period, and this he presumed was to be accounted for by the fact that the present structure stood upon the site of the original edifice, and that it could not have been enlarged on the western side without seriously interfering with the chapter buildings. He regretted to say that the chapter-house continued in a disgraceful state, although it was but fair to the Dean and Chapter to state that it was not strictly speaking, in their charge, being retained by Government as a place for the receptacle of records. The walls, upon which there were still paintings, were covered with old wooden presses, and the whole apartment was in a state of decay and desolation. The pavement (now concealed by a flooring of boards) contained some beautiful specimens of tiles, which had been copied and reproduced. With regard to the choir, he quite agreed that it was badly arranged, and yet he could not tell what better plan could have been adopted. It was formerly under the tower.

Mr. Blashill expressed his surprise that students of architecture did not oftener repair to the Abbey to study and sketch. He also called attention to the beautiful ironwork on the tomb of William De Vallance.

Mr. Mathews said that he believed members of the Association would be admitted to the Abbey to sketch, on producing an order signed by the president; but in any case he believed that the Dean would, on proper application being made, grant the necessary permission.

The Chairman agreed with Mr. Blashill in thinking that great benefit might be obtained from a careful study of the Abbey, and of the descriptions given of it by Mr. Scott and Mr. Burges. There would not, he believed, be any difficulty in obtaining permission from the Dean to sketch in peace without the nuisance of a verger constantly enjoining the necessity of "moving on," to make room for a new succession of visitors. In the summer months the Abbey was a delightful place to sketch in, and an hour or two a week might be very profitably employed in transferring its details to the note-book of the student. With regard to some photographs, of which Mr. McLeod had spoken, he said he was sure that the Association would be very glad to inspect them on their next night of meeting (March 4), when Mr. Gilbert Scott had promised to read a paper, entitled "Thoughts and Suggestions on the Artistic Education of Architects."

A vote of thanks having been passed to Mr. Ridge,

The Chairman announced that the next subject for the class of design would be, "The entrance doorway to a cathedral."*

THE IRISH NATIONAL GALLERY.

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

AT the last meeting of the Institute of the Architects of Ireland, Mr. J. J. M'Carthy, R.H.A. in the Chair, a paper by Mr. W. G. Murray, R.H.A., on the New Irish National Gallery was read, containing some very severe strictures on the design.

Mr. Murray briefly sketched the history of the building as known to the public, and mentioned that designs for it had been made by Mr. Lanyon, the President of the Institute, but that subsequently the task of carrying out the undertaking was intrusted, in or about 1857, to Captain Fowke, R.E. He expressed considerable dissatisfaction with the position and accessories of the Dargan statue erected in front of the gallery:—"William Dargan standing on a monolith, rough hewn, as it were, from one of his own rock cuttings, would have satisfied the mind or the eye—would have been according to good taste and judgment. As executed, he stands on a block that is big but not massive, without proportion in itself or to the statue, and which looks as if it had been got second-hand." Mr. Murray next commented on the meanness of the entrance and vestibule of the building, and the evident attempts to produce a striking effect in the sculpture hall, the general effect of which, however, was unsatisfactory. He next alluded to the grand staircase as ugly and awkward. The picture galleries were nicely painted, but in other respects show the same want of experience in designing, the same striking out into new paths, which are bad paths, as the room below. The building, although opened, is not finished, and the cost has been about 29,000*l*. The writer proceeded: "Mr. Lanyon's design, I am informed, while preserving the general character of the Museum on the south side of the lawn, took advantage of the irregular shape of the site to lengthen the building by about 70 feet, so that at both ends it should range with the Museum; and introduced, as a central feature, a very handsome hall, with a grand staircase projecting into the ground at the rear, and with this increased size, and elaborate finishings of carved stone and artistic stucco work in the interior, it was contracted for, to be finished for 29,000*l*. or thereabouts, which was afterwards reduced, by several alterations and omissions, to about 17,000*l*. I have no documents to prove these facts, but I am assured of their general accuracy; and being thus assured, I ask again, How can the vast increase be accounted for? I do not say, or wish it to be supposed for one moment, that any of the parties concerned have actually pocketed any of the

* We are asked to state, with reference to our last notice, that the proposition that a petition should be presented to Parliament, touching railway communication in London, was proposed by the *Chairman*, at the request of the Committee, and as their organ.

funds; but I do say that a committee of gentlemen, presided over by the Lord Chancellor, have 'meddled and muddled' the affair so successfully as to procure for the citizens of Dublin a bad building—a National Gallery of the Fine Arts from which architecture is excluded,—and barely half finished, at a monstrous cost, and that now they ask our thanks, as men who have deserved well of their country. Here we have no public opinion on art, and specially on the architectural branch of it; and we are saddled with an unfinished monster that can never be removed, and will perpetually stand in the way of any future improvement, both by its being there existing in its ugliness, and also by its having exhausted the fountains of generosity by which it might be replaced."

A lengthened discussion took place on the subject of Mr. Murray's paper, which was referred to the council for publication.*

FISH CULTURE.

AT the invitation of the Acclimatisation Society of Great Britain, whereof Mr. Frank Buckland and Mr. James Lowe are the secretaries, a number of gentlemen interested in piscicultural operations assembled on Saturday last at the Firs, Twickenham-common, the residence of Mr. Francis Francis, to inspect the arrangements lately made in his grounds for storing and hatching the ova of certain fish. The society has commenced its work on a very economical scale, the cost of the sheds, tanks, troughs, &c., having been kept within 120*l*. The apparatus is comparatively simple, consisting of a large cistern, which forms the water-shed of several tiny rivulets, flowing gently through a number of stoneware troughs, in which the eggs are placed during the process of maturation and hatching. These troughs are arranged on stages one above the other in such a way that the water runs out at the bottom of each into the top of the one below it. Each trough is about 3 feet long by 8 or 9 inches wide, having a depth of perhaps 5 inches, and is provided at the surface of the water with a gridiron formed of thin glass rods, placed so closely together that the eggs, which are the size of a small pea, cannot fall through. As soon as the eggs are hatched, the fish pass through the glass bars into the lower part of the trough, from which they are transferred to another series of troughs, containing small stones and pieces of slate, beneath which the young strangers hide themselves until the egg sac with which they are provided for the nourishment of their early days falls off, and they find themselves obliged to cater on their own account. They are then removed to the rivers which are to form their future home. The operation of placing the eggs in the trough was begun on Christmas-eve last, since which more than 130,000 have been tenderly cared for by Mr. Francis and his coadjutors, Messrs. Lowe and Buckland: over 40,000 eggs and fry have been already distributed, and fresh supplies are being daily received.

This is a subject of very great importance, and we look to see fish culture practised in this country on a large scale. Our readers will remember the illustrations we lately gave of the arrangements at Huningue.

Mr. Pender, of the Elms, Hampton, has undertaken the fish-hatching for the Thames Angling Preservation Society. Mr. Pender writes,—

"This is now the third year I have hatched a large number of fish in my apparatus, which I have erected at my own cost, and have already turned many thousand fish into the Thames, the result being that many young trout, salmon, and salmon-trout have been seen and even taken with the fly in the shallows of the river. The number of fish I have now hatching out in my greenhouse are:—Salmon, 15,500; salmon-trout, 900; great lake trout, 2,500; Mr. Buckland's hybrids between the salmon and the trout (doing remarkably well at present), 3,000; ombre chevalier, 4,000; English trout, 97,000; French trout, 4,800; the total number of fish we intend turning out into the Thames this year being, therefore, 127,700."

The young fish are now hatching out fast from their eggs; and in a few days it will be a sight to see swimming about in their nursery more than over 100,000 young salmon and trout.

* The following gentlemen were declared by the scrutineers duly elected:—As Vice-president (in consequence of the death of Mr. Byrne, R.H.A.), Mr. G. Wilkinson, (Fellow); as member of council, Mr. W. F. Caldbeck, (Fellow); as student, Mr. Patk. J. Byrne; as associates, Messrs. Peter J. Moran, Thomas Early, Fredk. S. Barff, and William Woods.

METROPOLITAN BOARD OF WORKS.

SUBWAYS.

AT the usual meeting of the Metropolitan Board of Works, last week, a deputation from the different metropolitan gas companies attended, to present a memorial on the subject of laying gas mains in subways, &c.

The memorial stated that subways were not suitable for gas mains; for if gas were mixed with common air it became explosive, and in confined and limited places was exceedingly dangerous. It was impossible to prevent the escape of gas (?), by reason of the rapid decay of pipes; and as all works in subways would have to be performed by artificial light, escapes of gas would be subject to almost immediate explosion. The memorial went on to say that frequent connexions with mains had to be made, but in a dark and confined space that would be at all times difficult and dangerous, and in cases in which large mains are to be connected, quite impracticable; as such work could not be performed by artificial light, and without more fresh air than could be obtained in any confined space. While admitting the usefulness of subways, they hoped the Board would protect the public and the gas companies from danger to life and property by exempting gas mains from the Subways Bill.

The Chairman said, the Board had not rushed into this subject without the fullest inquiry, for they offered premiums for the best designs for a subway, and those designs were referred to a committee, among whom were the late Mr. Robert Stephenson, Mr. Hawksley, Mr. Wyatt, Mr. W. Cubitt, the late Mr. Alexander Wright, Mr. Bazalgette, and Mr. Marrable, and they gave the fullest consideration to the subject. They believed that they should be able to prevent the escape of gas. The Board would do their best to improve the subways, so as to avoid any of the evils which had been referred to.

The memorial was referred to the Streets Committee for consideration and report.

THE PROSECUTION OF DR. MOORE BY THE BETHNAL GREEN BOARD OF GUARDIANS.

WITH a degree of persistence in wrong which, to the great majority of people, seems remarkable, the Board of Guardians of Bethnal Green continue to pursue as far as they are able a course of persecution against those who anxiously do their duty to the helpless and distressed.

Dr. Moore, one of their most active medical officers, has been charged by them before the Poor-law authorities with endeavouring to increase the cost of medical relief, by attending in unnecessary cases for his own profit. The evidence, however, leads to the belief, that in this instance, as in others, the discredit will fall upon themselves. The evidence which has been brought forward shows, that in October, 1853, Dr. Milroy came down from Whitehall, and called the attention of the Board to the fact that the Privy Council had issued peremptory orders relative to the summary abatement of nuisances. Dr. Milroy suggested to the Board, that all the medical officers should be formally appointed medical sanitary officers for the inspection and abatement of nuisances. In consequence, the Board of Guardians appointed the medical officers inspectors of nuisances. In this way Dr. Moore came to fill this post, and not as the Board say, from his own seeking. As our readers know, in the discharge of this duty, Dr. Moore gave offence to the parish authorities, by bringing dangerous sanitary neglects under notice, and in consequence Dr. Moore was dismissed from this post; and, no doubt, if it had been in the power of the Board to do so, he would also have been discharged from his position of medical attendant on the parish poor.

One of the charges is, that Dr. Moore has brought the Board into contempt by the promulgation of exaggerated and false reports, though the parochial authorities of Bethnal-green must be well aware that it was impossible to give exaggerated accounts of the evil and disgraceful sanitary condition of these districts. Besides, Dr. Moore was charged with having made excessive demands for fees; but this the evidence fully rebutted.

Dr. Moore, in the course of the examination to which he was subjected, said the present was not the first time the Board of Guardians had preferred charges against him. About three years ago they did so: investigation was instituted, and he was honourably acquitted. Some idea of the description of persons upon whom the guardians have depended for evidence against their medical officer may be gathered from the following part of Dr. Moore's statement:—"Mrs. Mandrell was able to go out, but she did not call to get her prescriptions, because she said 'You' [the doctor] 'are well paid, and I expect you to call upon me.' He never said he was not paid to attend pauper patients—he had to order her to discontinue the drinking of spirits. He attended her children, who suffered from scarlet-fever and were very dirty." Dr. Moore described the dirty condition of the woman's house, &c. in Hollybush-place; a locality which, he said, since then had been repaired, gravelled, and drained, the windows glazed, &c. The other charges were of a most paltry description. It strikes us that if any substantial blame could have been thrown on Dr. Moore, the parish authorities would not have failed to bring it to light. Mr. Sleigh, the counsel who defended Dr. Moore, very rightly said that the prosecution was set on foot by some who were put forward for the gratification of an interested malignity. Dr. Moore was formally charged with neglecting his patients. He had attended 1,400 patients in the year, and no limitation of time was regarded; and yet the only patient they could even allege was neglected was the Mrs. Mandrell above referred to, of whose notions of sanitary requirements we happen to have had personal evidence.

It is a fortunate thing that Dr. Moore is not altogether in the care of the parish authorities of Bethnal Green, and that the Poor Law Board have the power to decide in such cases. The whole evidence is now before the Central Board, and there is no doubt that justice will be done.

LIABILITIES OF ARCHITECTS AND BUILDERS.

THE ISLINGTON ACCIDENT.

Pearce v. *Davis, Williams, and Chapman.*—This was an action brought by Maria Pearce (in the Court of Exchequer, February 20th), on behalf of herself and children, to recover compensation in damages for the loss of her husband, who was killed by the fall of the Three Wheatsheaves public-house, in Upper-street, Islington, on the 26th of November last.

Mr. D. Seymour, Q.C., and Mr. Henry James were counsel for the plaintiff; Mr. Hawkins, Q.C., and Mr. Hopwood appeared for the defendant Davis; and Mr. Serjeant Simon and Mr. Cole for the defendants Chapman and Williams.

The defendants were, Mr. Davis, the proprietor of the Wheatsheaves; Mr. Williams, the architect; and Mr. Chapman, the builder, who constantly visited the premises, and who, it was contended, were jointly liable for the accident. The husband of the plaintiff was a carpenter, employed on the house when it fell. The re-erection of the public-house commenced on the 22nd of October last, and the accident occurred on the 26th of November following. The case for the plaintiff was, that the house fell in consequence of the undue and improper haste with which the works were carried on, the object of Davis being to open it for business on the 7th of December, when he anticipated making large profits from the visitors to the Smithfield Cattle Show, which was to commence on that day, in the Agricultural Hall. Owing to this over-haste, the mortar had not time to set and dry, a circumstance of which it was submitted the defendants must all have been fully cognizant, on the morning of the catastrophe.

Evidence to this effect having been given,

Mr. Hawkins submitted that the plaintiff had made out no case, and ought to be nonsuited.

Mr. Baron Martin said that in no way could Davis be liable; and if the other two defendants were liable, they were so separately, as architect and builder, and not jointly. He would direct a nonsuit as regarded all the defendants; but if Mr. Seymour could satisfy the Court above that there was a cause of action, he would take care that the plaintiff had a new trial. This was, no doubt, a melancholy case, and every one would sympathise with a widow who was left with six children; but of late there had been a series of attempts to cast a liability on persons engaged in building which had no real existence, and they should be on their guard against them. This was one of those instances; and however much they must lament the occurrence and its conse-

quences, they ought to take care not to create in respect of it a new cause of action; for if they did it was impossible to say where it would end. In his opinion, there was no legal liability on the part of the defendants at all.

A nonsuit was then entered, leave being reserved to move the Court above upon the subject of liability.

MR. BRASSY'S CONTRACTS.

MR. THOMAS BRASSY, the eminent railway contractor, is said to have entered into contracts with the Russian Government, amounting to 24,000,000*l.* sterling, to construct railways from St. Petersburg to Odessa, and from Odessa on to Sebastopol, in the Crimea. The transactions of Mr. Brassy, since 1834, in railway contracts, have amounted to not less than the vast sum of 100,000,000*l.* sterling. In every work Mr. Brassy has earned a reputation for strict honour. Some few generations since the family name was "De Bracey." Should the Crown think fit to mark its sense of such a career, Sir Thomas De Bracey, bart., would be a sonorous title for the greatest of our railway contractors.

ELECTION OF CITY ARCHITECT.

THE election is fixed for, this, Friday. There are twelve candidates—namely, Mr. Thomas D. Barry, surveyor to the city of Norwich; Mr. Richard Bell, of 17, Gracechurch-street; Mr. Frederick Chancellor, of Pinners'-hall, Old Broad-street; Mr. Henry Dawson, 16, Finsbury-place South; Mr. William Henry Heath, 4, Broad-court-buildings; Mr. C. W. M. Horne, 20, Guild-ford-street, Russell-square; Mr. Lewis Henry Isaacs, 3, Verulam-buildings, Gray's-inn; Mr. Horace Jones, 16, Furnival's-inn; Mr. Frederick Peck, 15, Furnival's-inn; Mr. Richard Tress, 27, Queen-street; Mr. John Scott Tucker, 17, Park-street, Grosvenor-square; and Mr. Frederick Wallen, 68, Old Broad-street. The office is one of great antiquity. It appears to have existed previously to the year 1479. The *Times* says,—"Originally the nomination to the office seems to have been with the Lord Mayor for the time being, who disposed of it on vacancies arising. In 1703, when the corporation was in the habit of disposing of the offices in its gift for considerations in money, that of the clerk of the works was valued at 600*l.* It was sold in 1723, on becoming vacant, to Mr. George Smith, for 630*l.* In 1749, the common council passed an Act for preventing the sale or alienation of certain places at its disposal, of which this was one. Mr. Dance, who was the architect of the Mansion House, held the office for nearly half a century—namely, from 1768 to 1815, when he resigned. He was succeeded by Mr. William Montague, who filled the office until his death, upwards of twenty years ago. Mr. Bunning, the last holder of it, was then elected, at a salary of 1,600*l.* a year, subject to the payment by him of his clerks and of all the expenses of his office. From Midsummer, 1846, the salary was increased to 2,500*l.*; and in July, 1852, having regard to additional and important duties imposed upon the architect, under the Clerken-well Improvement Act, his stipend was fixed at 2,500*l.* a year, irrespective of the expenses of his office, for which an additional sum of 1,000*l.* a year was granted."

THE EDINBURGH OPERATIVE MASONS' ARCHITECTURAL UNION.

MR. GOWANS delivered a lecture in connexion with this union, in the Masons' Hall, a few evenings ago, the subject being, "The Leading Lines of Design." It was long, he said, since he became convinced that all true shape or true proportion of parts rested not upon the intuitive perception or taste of individuals, but upon fixed and unalterable rules. The combination of theory and practice, or the head and the hands joined together, was necessary to produce what was admirable in architecture. With regard to architecture, the climate, the geographical position, the geological formation, and, above all, the religious belief of a people, had to do, not only with the plan, but the exterior features of their structures. He proceeded to show how religious belief had the most to do with the science of design. The Athenians worshipped a God whom they did not know, and the geometric figure which they used to symbolise that unknown God was the circle, as representing Unity and Eternity. That figure, along with the square, they used in a primary way in determining the general proportions of their buildings, while the elliptical curve, which was the geometrical development of the circle, was used for the decorative feature. The Gothic or Christian style arose and was developed from the faith which we now hold in regard to the triune God, or three in one. That being so, it could easily be understood how the founders of our early English symbolised their belief by adopting the circle and equilateral triangle combined—the circle signifying the All-one God, and when divided into three, forming the equi-lateral triangle, which represented, as true as geometric figure could, the three equally pertaining to the one. He held that our churches should not only be designed upon true lines, but they should be constructed with the best material; and the internal arrangement should be so devised that all that was about the church would give the impress of the worship to which it was dedicated, keeping in view the hearing, seeing, and comfort of the congregation.

IMPORTANT RAILWAY COMPENSATION CASE.

Kilshaw v. *The London and North Western Company.*—A case of considerable interest to parties connected with railway matters has been investigated at St. George's Hall, Liverpool. A sheriff's jury had been empannelled to try a claim made against the London and North Western Railway Company by Mr. John Kilshaw, of Bootle, for the compulsory sale of a quantity of land at Bootle, required for the Bootle branch railway, now being constructed by the company. Mr. Kilshaw claimed 10,000*l.* for the purchase of the land, and 2,175*l.* compensation for being compelled to incur a breach of covenant towards three several parties to whom he had leased the land in question. The court was much crowded on both days by a considerable array of engineers, surveyors, and others interested.—Mr. Brett, Q.C., stated the case in detail on behalf of the claimant.—The claimant and other witnesses having been examined, several surveyors and valuers were called on his behalf. Mr. John Cunningham valued the whole of the three lots of land, including 10 per cent. for compulsory sale, at 6,823*l.* 18*s.*; Mr. Owen Williams, 6,474*l.* 5*s.* 9*d.*; Mr. Weightman, 7,864*l.*; Mr. J. B. Hughes, 7,169*l.* 14*s.* 9*d.*; Mr. Ellison, 6,786*l.*; Mr. John Young, 6,834*l.* 7*s.* 5*d.*; and Mr. J. Scourfield, 7,040*l.*—Mr. Picton was called for the company, and valued the land at 3,682*l.*; Mr. Culshaw, 3,297*l.*; Mr. W. H. Gee, 3,009*l.* 3*s.* 9*d.*; and Mr. Shelmerdine, 3,649*l.*—After the learned counsel had replied on the evidence, the jury returned a verdict for the claimant for 5,020*l.*, including 133*l.* to Mr. Tomkinson for damage.

CLERKS' SALARIES.

SIR,—The clerks to an extensive London building firm beg to call your attention to an advertisement in one of your recent numbers, viz.—

"*To Surveyors' and Builders' Clerks.*"

Wanted, in the Office of a first-class Builder, a respectable and intelligent Young Man, *aged about* 25: one thoroughly competent to make surveys, assess dilapidations, take out quantities, prepare estimates, and to undertake all the necessary duties connected with the business of a surveyor and builder. *Salary at first* 25*s. per week.*"

Now it is almost needless to remark that, for a clerk to come up to the advertiser's standard of ability, years of experience are required, and he expects to find a young man, at the age of twenty-five, with this experience, who would, for the *munificent* salary of as many shillings per week as he is years old, perform the varied and responsible duties required.

Surely builders' clerks ere long will have to pay for their situations like waiters in a dining-room.

PENTAGON.

COMPETITIONS.

Huddersfield.—The design of Mr. William Hill, architect, of Leeds, has been selected, in a limited competition, for the proposed Methodist New-Connexion Chapel, High-street, Hudders-field. The old chapel will be immediately pulled down, and the ground cleared for the new building, which will be a large Gothic edifice, capable of accommodating upwards of fifteen hundred persons. The estimated cost is upwards of 6,000*l.*

Wantage.—During the past week the committee of the new corn exchange have been engaged in selecting a design from the twenty-five competition designs sent in. That furnished by Mr. Wheeler, of London, is the one selected. The exterior is composed of red brick, with white stone bands. The building will also include magistrates' and commissioners' rooms, savings bank, and company's rooms. Mr. Dodd, of Reading, and Mr. Brooks, of London, receive each the sum of 10*l.*, their designs being considered as standing next.

Manchester Cemetery.—The unsuccessful candidates very justly complain that only the selected designs are being exhibited; and they ask, rightly enough, why they, the unsuccessful, should be deprived of the only benefit, publicity, that can now accrue to them in return for their labours.

St. John's Church, Carlisle.—Competitors assert that the committee have totally set aside the instructions which they issued to architects for their guidance, and which were to design a church to seat 1,000 persons, and to cost 3,000*l.*, having awarded the first place to a design which, when erected, will only seat 800 persons, and was estimated by several practical men who saw the several designs, to cost at the least 5,000*l.*

METEOROLOGY.—RAIN-FLOODS.

A CLOSE study of meteorology is necessary to the civil engineer. The study of one life in one locality is not, however, sufficient to learn the possible excesses of nature. The engineer must also look beyond "averages," and prepare for the greatest possible excess. The following record of an extreme flood in Melbourne ought to teach a lesson to the engineers of that new and most interesting country:—

"The present year has been characterised by the severest storm and the greatest flood (in the Yarra) ever experienced. The flood attained its greatest height on the 17th instant. Sandridge became an island. Traffic was suspended for some days on the Hobson's Bay Company's lines. At Heidelberg, the Yarra rose some 50 feet in perpendicular height; and at Dight's Mills—a three-story stone building—it encroached several feet upon the roof. No vessel could enter or leave the harbour for about a week. Fortunately, no serious casualty occurred in the bay. The water reached high up into King-street, and boats plied in Flinders-street and Flinders-lane. Several lives were lost, and a large number of wooden houses were carried away. Subscriptions for the sufferers are now being raised."

The lesson taught is, that what has occurred once may be repeated, and should be guarded against. Some rivers in South Africa rise as much as 70 feet vertical in flood. Rivers in Great Britain rise from 10 to 25 feet vertical in flood: the lakes of Killarney rise occasionally 9 feet; Derwentwater lake, 8 feet; and Basenthwaite lake, 12 feet vertical, in flood.

DESTRUCTION OF LEAD.

I BEG to inform your correspondent "S." that the water "perfectly pure to the taste" is only too certain to have caused the mischief he laments. As the *Builder* has often told the public, the water in such a case is not fit for drinking or cooking purposes. It is poisonous; and though the injury therefrom might be slow, it would be sure. I should recommend him to have a cistern of iron or slate; but if he continue to use lead, he will save his health and his pocket by painting the inside of the cistern with two or three coats of good oil paint. It is a great pity this practice is not general. "S." will find some valuable information on the subject in past volumes of the *Builder*.

I am glad the *Builder* continues to raise its voice on the subject of domestic poisoning. Impure air, bad water, and unwholesome food are strictly poisons, constantly and fatally at work; but because of their comparatively slow action, and people's ignorance, carelessness, and indifference, are allowed to annually carry off thousands.

"S.," you may perceive, seems only to regard the *money* view of the matter. P. E. M.

As the original introducers of wrought-iron cisterns, we may be excused from the suspicion of self-interest in coming forward to give information on a valuable subject. Iron cisterns possess many advantages: no frost injures them, and the effect on the water is decidedly tonic and wholesome; and in matter of cost, we think "S.'s" cistern will sell for nearly as much, as old lead, as will provide him with a new iron one. In this case, as in many others of wants in the building trade, a reference to your advertising columns points out where to go for a remedy.

BURNEY & Co.

SCHOOLS OF ART.

The Hanley School.—The annual examination of this school has just taken place. Mr. Eyre Crowe, Government Inspector, attended. On Wednesday, about 160 presented themselves for examination in the elementary, or first grade, chiefly from the nine public schools taught through the agency of the School of Art. The same evening, about seventy were examined in the more advanced stages. On Thursday, the progress of the students was tested by reference to the works executed last year. Twenty-five local medals were awarded, six of them to three students; and a specimen of painting on porce-

lain, after Mulready, by Elijah Dunne (the recent successful competitor for the Society of Arts' premium for porcelain painting) was chosen for national competition. The prizes offered by Alderman Copeland, M.P., and Mr. Grenfell, M.P., were awarded. The school, under the management of Mr. Carter, the master, has progressed in a manner which gave satisfaction to the inspector.

The Stoke-upon-Trent School. — The annual examination at this institution was confined to exercises in the first and second grades. The drawings and models, instead of being examined at Stoke, as heretofore, for local medals, will this year be forwarded to London, in March, for that purpose, in consequence of the school having come under the new regulations for payments to be made by results. The prizes, amounting to 10*l.*, offered by Mr. Beresford Hope, and the committee's prizes, were awarded.

Petition to Parliament as to Schools of Art. Mr. Potter, M.P. for Carlisle, has presented a petition to Parliament on this subject. The preamble says:—

"That your petitioners, whilst admitting that the grant made by your honourable House for the purpose of forwarding art education in the United Kingdom is a large and liberal one, and has been of especial service during the last few years; yet, as appears to your petitioners, a large and increasing portion of such grant is expended at South Kensington, whilst the amounts allotted to the majority of the provincial schools have been year by year lessened; and further, that by a minute recently passed, the amount received by such schools will be totally inadequate to recompense the masters of schools, without large pecuniary aid from voluntary subscriptions."

The petitioners are the committee of the Carlisle school, and they pray for the appointment of a committee of inquiry, or to grant such other relief as may be deemed expedient.

CHURCH BUILDING NEWS.

Horsham (Sussex).—Attention is now being called to the deplorable state of the parish church here, with a view to its restoration.

Gloucester.—Among the works now in progress at the cathedral, arrangements are being made for warming the choir. The workmen, in excavating a sort of tunnel in the crypt, came upon a skeleton, which had originally been buried without a coffin, although with the bones were found remains of the boots of the deceased person, in a good state of preservation.

Cowleigh (Malvern).—The new church here has been completed. The style is based on the Early English. Mr. Street, of London, was the architect. The edifice comprises nave, chancel, aisles, clerestory, &c. The aisles are separated from the nave by five pointed arches on each side, supported by circular pillars, without capitals, the masonry at the spring of the arch overlapping the pillar and answering the purpose of a cap. The roof, which is boarded with plain deal beneath the rafters, is canted, almost semicircular, and steep pitched, having plain tie-beams and king-posts; and the clerestory has one large trefoil-headed light, beneath a semicircularly arch externally. The aisles have open-timber, plain, lean-to roofs. In the aisles two- and three-light trefoil-headed windows are under square heads. The great east window has three lights, with three trefoils in the head, and the west one four lights, with a sexfoil and two quatrefoils in the tracery. Three steps lead up to the chancel, and three similar ones to the communion-table. There are a credence-table, piscina, and sedilia. There is a panelled boarded ceiling over the chancel, and on its north side is a small vestry. Dividing the chancel from the nave there is a low stone screen, being ornamented with small sunk panels, having tracery-like windows. A stone pulpit, at a very moderate elevation, projects over the screen on the south side from the chancel into the nave, in a semicircular sweep. Its moulded top is supported by nine small shafts, of various coloured marbles, between which considerable space is left, so that the pulpit is open on all sides. A smaller circular base supports the whole. The reading-desk, or lectern, on the north side of the chancel screen, is a mere continuation of the choir seats. Open movable benches are supplied for the nave, being of plain deal varnished, and the floor is tiled throughout (no boarding) in black, buff, and red tiles, set lozengewise. Malvern Hill stone (rubble) and Bath stone facings and dressings are used externally, and Cradley stone inside the building, the sober grey colour of the latter harmonizing with the lighter complexion of the free stone. The pulpit is of Painswick stone. Skinner, of Bristol's warming apparatus is applied, the chamber for the furnace and water-pipes being constructed under the S.E. angle of the church. There are at present no stained-glass windows in the church. Funds, however, are wanting to complete the structure, and several hundred pounds will be required to pay the architect's charges, and to drain and level the churchyard.

Frome.—The new church of St. Mary the Virgin, at Frome, has been consecrated. The building will form a chapel-of-ease to the parish church for the suburbs of Frome called Welsh-mill, Innox-hill, and Fromefield. The new chapel stands on the eastward or townward slope of Innox-hill, and its site was anciently called "The Ladye Mary Spring Fields." The chapel is in the Early English style. The building consists of nave, chancel, south porch, and a small organ-chapel, with a vestry adjoining the chapel. The only entrance is by this south porch, the capitals of the pillars of which are symbolically carved. The nave is lighted with stained glass windows, and over the pulpit is a dormer window of geometrical design. The chancel is of semi-octagonal form, each compartment being filled by a single-light window, executed by Messrs. Clayton & Bell. The reredos is of carved work. The three panels are filled with sculpture, the centre group representing the Saviour bearing His Cross, while on each side are the angelic host. The panels are divided by polished Devon marble columns; and the whole is surmounted by a cornice, ornamented with the ball-flowers, and terminating in a carved finial. The altar-space is inlaid with Minton's encaustic tiles, of the cross and *fleur-de-lis* pattern; while the altar-steps are of polished lime-stone. The roof of the chancel is decorated. The ground is blue, with golden stars; and over the altar is a golden glory. The main timber is picked out in various colours. A dwarf stone screen divides the chancel from the nave, the columns being of dressed red Mansfield stone, with carved capitals surmounted by trefoil arches. The organ is by Vowles, of Bristol, the pipes being illuminated by Horwood, of Mells. The aisle is floored with encaustic tiles, of red and black pattern, the space under the seats being boarded. The fittings are all of stained wood, in harmony with the timber roof. The walls are of local stone, hammer-dressed and pointed. Externally, over the chancel arch is a small bell-cote, surmounted by an iron gilded cross. At the west end is a bell-gable. Adjoining the chapel, on the northern side, are a school-room and class-room; and adjoining this again is the clergyman's residence. The architect was Mr. C. E. Giles; and Messrs. Brown were the builders, and Mr. Tookey clerk of the works. The carvings were done by Mr. Ezard, of Bath. Mr. J. W. Singer supplied the iron-work.

PROVINCIAL NEWS.

Yarmouth (Isle of Wight).—The construction of a large brick-kiln has been commenced in a field at Wilmingham, on the borders of the river Yar, and within a short distance of Yarmouth, by Mr. Bignell, of Carisbrooke. We hear Mr. Bignell has a contract for several millions of bricks for the extensive fortifications at Hurst and other places. Upwards of 100 hands, it is said, will shortly be employed in the manufacture.

Glastonbury.—The Town-hall having been deemed too small, Mr. James Austin, of the Abbey, has offered an eligible and central site for a new one, the entrance to which will be at the Abbey gates, High-street. It has been resolved by a numerous and influential public meeting, to accept the offer, and shares in the project have been taken.

Lymington.—The new Volunteers' Hall, now in course of erection by the Messrs. Hollis and Rashley, is approaching completion. It will give more than double the space of the present Assembly-rooms, being 76 feet in length, and 40 in width, and will afford ample room for the movements and evolutions of the corps. The hall is to be approached from a wide platform of steps, which are to be ornamented with cannon and other military decorations. Mr. Inman has built this hall for the free use of the volunteers. It will also offer facilities for any large public meeting or general festival, and will thus supply a want long felt in Lymington, of a public room large enough for any purpose that may be required.

Plymouth.—The number of new buildings which have been recently springing up in the neighbourhood of the Three Towns shows that trade and commerce are flourishing in this locality. Many who have been absent from Plymouth for some length of time express astonishment at the great changes which a few years have made in the architectural appearance of the streets, and the increase there has been of late in buildings of a good and substantial character. Mr. Derry, the ex-mayor, has just completed a range of stables in Station-road, which adds another to the town improvements. This block of buildings has been designed by Messrs. Foster & Son, architects, and built by Messrs. Call & Pethick. There is accommodation for 30 horses. The large stable is divided into 25 stalls, constructed of timber stained and varnished. The partitions are bound with iron headings. The mangers are also of iron. There is a clear space of 6 feet 3 inches between these partitions. The length of this building is between 70 and 80 feet, and the ventilation has been attended to. The loft overhead is capable of containing fifty tons of hay. On this floor a chaff-cutter is placed, which, together with an oat-bruiser, is worked by a small steam-engine, of about 3-horse power. The corn loft is from 50 to 60 feet long. The building also includes a harness-room, where fifty sets of harness may be conveniently hung up. A large iron tank or cistern, constructed by Messrs. Moir & Sons, of Plymouth, has been erected in a convenient spot. It is capable of containing about 2,000 gallons of water. The walls of the building are composed of rough stone. The iron work, of which there is a good deal, has been supplied by the Plymouth Engine Works Company.

Books Received.

The Ninth Annual Report of the Wesleyan Chapel Committee; 1863. London: printed by Hayman, Brothers, Gough-square, Fleet-street.

THIS report is illustrated by a variety of engraved views of chapels belonging to the Wesleyan body throughout the country. Some of the designs are very good, and are as well set forth as could be desired. The following summary of last year's transactions will show what the Wesleyans are doing in the way of chapel and school building and enlargement:—

Summary of Erections allowed.

	Estimated Cost.	Temporary Debt Allowed.	Estimated Income.
	£.	£.	£. s. d.
90 Chapels	85,446	19,902	3,557 4 6
16 School-rooms	12,778	984	—
69 Alterations and enlargements	21,643	3,987	636 10 0
27 Modifications of cases previously reported	10,526	5,320	—
28 Organs	4,494	—	—
Total, 230 cases	134,887	30,223	4,193 14 6

Summary of Erections completed.

	Cost.	Temporary Debt.	Estimated Income.
	£.	£.	£. s. d.
42 New chapels	54,658	11,870	2,773 17 0
1 Minister's house	663	91	—
32 School-rooms	36,005	154	—
34 Alterations and enlargements	10,565	1,884	241 18 0
17 Organs	2,096	—	—
67 Conditions not yet complied with	53,684	19,264	2,311 13 9
29 Without leave	9,855	4,580	291 17 0
Total, 222 cases	167,516	37,843	5,619 5 9

Miscellanea.

SOUTH WALES MEMORIAL OF THE LATE PRINCE CONSORT. — It is proposed (though not quite settled), to commission Mr. Durham to execute a reproduction of his statue of the Prince Consort, forming part of the Memorial of the 1851 Exhibition, set up in the Gardens of the Royal Horticultural Society. The site talked of is Tudor-square, Tenby.

THE HOTEL MOVEMENT.—The fourth ordinary general meeting of the shareholders of the International Hotel Company has been held at the hotel, London Bridge. The gross receipts for the past half-year had been 13,655*l.* 0s. 11d., and the expenditure 9,103*l.* 2s., giving a net profit of 4,551*l.* 18s. 8d. The directors recommended a dividend at the rate of 6*l.* per cent. per annum, which would enable them to carry forward 1,402*l.* 18s. 9d. to the credit of the next half-year's account. The report was adopted, and the dividend as recommended agreed to.

THE LITERARY FUND SOCIETY.—H.R.H. the Prince of Wales has signified his intention of presiding at the next annual dinner of the Literary Fund. This will be the first occasion on which the Prince has acted in such a capacity. The dinner will take place on the 18th of May, in St. James's Hall.

MEANS OF EGRESS FROM PUBLIC BUILDINGS.—The movement continues in the provinces in favour of increased means of egress from public buildings in case of alarm from fire or other cause. The Bristol *Journal* calls attention to the very defective state of most of the public buildings of Bristol in this respect, and alludes especially to the Broadmead-rooms with but one door through a long and narrow passage. The rooms are leased; but belong to the Corporation. The necessity of opening a second door to and from the Maidstone Corn Exchange has been under the consideration of the local council, and the subject has been referred to the Market Committee.

CO-OPERATIVE PROGRESS AT BLACKBURN.—The new premises of the Blackburn Cotton Spinning and Weaving Company, Limited, have been opened. The company consists entirely of operatives resident in Blackburn, Withnell, Accrington, Church, Preston, and the neighbourhood. The proposed capital was fixed at 60,000*l.*, in shares of 5*l.* each. At the present time the amount subscribed is 14,000*l.*, of which the sum of 11,000*l.* is paid up. The weaving shed has been erected, and preparations are being made for the building of a complete mill, shares for which have not yet been issued. The cost of the building, so far as it has gone, is about 8,000*l.* The shed will accommodate 520 looms.

LIABILITY OF METROPOLITAN BOARD OF WORKS FOR COMPENSATION.—A case of public importance as involving the liability of the Metropolitan Board of Works to make compensation to such persons as have suffered by a loss of trade, and in other ways, in the course of the alterations and improvements effected by that body, has been decided by Mr. Cook, at Worship-street. The claimant was Mr. Richard Pyle, in extensive business as a soda-water, ginger-beer, and muffin and crumpet maker, in Willow-walk, Tabernacle-square, Finsbury. After evidence had been given and counsel heard, Mr. Cooke said, that subject to the objection that more than six months had expired since the alleged damage to the claimant's business took place, and which entitled the Board of Works to a verdict, he was of opinion that the complainant was entitled to recover for the full amount of his claim. It was not contended by the Board that he was not entitled to recover for the actual damage done to the building indeed, they had offered him compensation for the same, but they contended that the plaintiff was not entitled to recover for loss of profits of business. Now he thought the case of "Senior v. The Metropolitan Railway Company" was conclusive upon this point, and that the loss of the profits of trade was a proper subject of compensation. He was unable to distinguish this case from that in which a private company were the defendants.

THE NEW BRIDGE AT WALTON-ON-THAMES.—Many of our readers will remember the old bridge across the Thames to this town, with its steep roadway and lofty arches, which fell down some years ago. It has lately been rebuilt. The new bridge is on the same site, and has the same number and spans of arches as the old one. It has also the same width, 21 feet in the clear; but instead of the steep incline and high summit which were so inconvenient, the approaches are commodious, and the highest point of the roadway in the centre is nearly 20 feet below the old road, though the height and space for navigation are much greater than formerly. This result has been obtained by the use of wrought iron. There are two segmental lattice girders at each side of the bridge, the roadway being supported by cross girders. There are two spans of 44 feet and two of 62 feet, the total length of bridge from shore to shore, including the piers, being 233 feet. In addition, a considerable length of the old flood viaduct was pulled down and lowered, making the total length of new roadway and approaches, included in the contract, about 480 feet. The total cost, including the land arches, river bridge, and all the works, was very little over 4,000*l.* Mr. E. F. Murray, of Westminster, was the engineer, and Messrs. Kennett, Spink, & Else, of Bridgwater, were the contractors. Mr. Murray has prepared a design for a new bridge at Hampton Court, which is just about to be commenced.

IRON.—At a meeting of the Ironfounders' Association, on the 7th of January, it was resolved:—That an advance of 1*l.* per ton be made from this date on the price of all castings.

WILSON'S ENDLESS BAND SAWING MACHINERY. This machinery, constructed by Mr. Joseph Wilson, builder, Bradford, Yorkshire, consists in the use of a large endless band saw, 8 inches broad, and No. 15 gauge, extended over two large pulleys or drums, supported on massive iron standards, bolted to ashlar foundations; also of travelling tables, 45 feet long, having suitable bearers or runners. The machine is capable of being worked by an engine of 7-horse power. The tables are arranged to carry the log past the saw to any extent, without stopping for re-adjustment, by which the necessity for transomes is avoided. This machinery, comprising the particulars already named, with other means combined, is at once adapted, says the *Engineer*, to the purpose of cutting up all kinds of round or square timber, mahogany logs, &c., to the depth of 4 feet and upwards, if required. It is equally serviceable for reducing the same into scantlings or boards.

THE STUDY OF FINE ART IN CAMBRIDGE UNIVERSITY.—The Rev. W. Emery, the chairman, and Rev. W. J. Beamont, the secretary of the Cambridge School of Art, have been endeavouring to promote its more general study, by advocating the establishment of an art tripos in the University course. Their proposal, as we learn from a review of Mr. Beamont's pamphlets, in the *Cambridge Chronicle*, is this, viz., for undergraduates to pass the Little-go as usual, and then to follow the study of fine art as a speciality, and to take a degree in art, after an examination in sculpture or painting: it is said, with some degree of force, if the University confer a degree in music, or physic, or divinity, or surgery, or law, why not in art? It is argued, that the Disney Professor of Archæology and Art might combine the study of fine art in his curriculum, with the aid of the master of the school of art. From the manner in which the proposal was received at a recent meeting of the members of the senate in the Arts School, however, there is not much probability, our authority thinks, that it will be carried out.

THE ROYAL ACADEMY AND THE EXHIBITION BUILDING.—On Lord Elcho, in the Commons, asking the First Commissioner of Works whether the Government had taken any, and, if so, what steps, to give effect to the recommendations of the Royal Commission on the Royal Academy; and when the removal of the whole of the late International Exhibition building would be completed, and what was intended to be done with the site; Mr. Cowper replied that the Royal Academy had been in deliberation on the subject first mentioned for some time, but hitherto they had made no report. The site of the Exhibition building was not yet cleared, and the Government had remonstrated with Messrs. Kelk & Lucas on the subject. At present, the removal was going on rapidly. Preliminary steps had been taken towards the decision as to the building hereafter to be erected on the site. He had invited a competition of architectural plans and designs of the buildings hereafter to be erected, and they would be with reference to the disposal of the whole site.

SANITARY STATE OF MARYLEBONE.— The monthly report on the health and climate of St. Marylebone, during January, 1864, by Robert Dundas Thomson, M.D., F.R.S., medical officer of health for the parish, has been issued. From this report it appears that the intensity of the cold in the early part of the month had a very distinct effect in augmenting the mortality list. The deaths have been 466 against a mean in eight years of 399. The deaths exceeded the births by seventy-four. The cold, if it exerted any effect on zymotic diseases, seems to have held them rather in check, since the number of deaths from these complaints was 50 in the four weeks of January, contrasted with 91 in the five weeks of December. Scarlatina, which has been so fatal in previous months, has fallen to 18 from 39 in the preceding five weeks; measles from 10 to 4; whooping-cough from 14 to 10. Bronchitis has proved fatal to 114 against 49 in the five weeks of December. The number of cases of sickness returned from eleven institutions has been large, 5,582 in four weeks, against 5,734 in the preceding five weeks of December. It is somewhat satisfactory to know that the deaths from smallpox have been 2 against 4 four in December, and that the cases reported are 12 against 28 in the preceding month.

FACTITIOUS BLOCKS.—Sir: Observing in the last number of the *Builder* that a patent has been obtained for manufacturing factitious blocks of wood as therein stated, by Gustave Colomb, I beg to say the invention is not new. The very same thing has been done in my father's shop for the last thirty years.—T. WAGHORN, JUN.

GAS.—The Newport Gas Company have declared a dividend of 10 per cent. per annum on Class A shares, and 7½ on Class B shares.——The Stafford Gas Company have declared a dividend of 7½ per cent. per annum.——The Andover Gas Company have reduced their price 1s. per 1,000 feet, or 10 per cent. on previous prices.——The Liverpool United Gas Company have declared their usual dividend of 10 per cent. per annum for the last half-year.——The Winchester Gas Company have reduced their price from 6s. to 5s.——The Ipswich Gaslight Company have made a further reduction in price from 4s. 6d. to 4s. The demand for their gas is so much on the increase that they require new capital to carry out requisite works. The company have just declared a dividend of 10 per cent., free of income-tax, besides "arrears of dividends."

FUNERAL OF MR. W. DYCE, R.A.—On Saturday last, at noon, the mortal remains of this distinguished artist were interred in the churchyard of St. Leonard's, Streatham, with a solemn service, amid a hearty feeling of sympathy on the part of his brother artists and the parishioners of Streatham. The boys of the Chapel Royal, accompanied by the Rev. T. Helmore, priest in ordinary to the Queen, were present in surplices, and performed the church service with full choral solemnity. Among those present, besides the widow, with the two youthful sons and the brother-in-law (Mr. Brand) of the artist, were Mr. Maclise, R.A., Mr. E. M. Cope, R.A., Mr. J. P. Knight, R.A., Mr. J. R. Herbert, R.A., the Rev. Cyril Page, Mr. B. Ferrey, &c. Mr. Dyce had finally determined to give up his profession in consequence of ill health, and at the time of his death was in treaty for an estate in Kent—Orpington Priory, St. Mary Cray. His ill-health had also induced him to resign all attempt to complete his engagement to assist in the pictorial decoration of the House of Lords, and he had returned to the Treasury all advances made to him on that account.

HILLFIELD HALL, WARWICK, DESTROYED BY FIRE.—One of those ancient manorial buildings which are the pride of the county of Warwick (says the *Birmingham Gazette*) "has been consumed by fire. Hillfield Hall is well known to the antiquaries of Warwickshire as a fine specimen of the good old homesteads of Old England. It was a building of the most pure Elizabethan style of architecture, and is said to have been built in the year 1576. There is a tradition, and by many believed to be true, that "Good Queen Bess," when on her journey to pay her memorable visit to Kenilworth Castle, passed a night in a room in the house. About four years ago the hall was completely restored, at an expense of about 3,000*l.*, and was held on a seven years' lease by the present tenant. The origin of the fire is, as usual, a mystery; but the probable reason was, that the piping from the stoves had become heated so much that it set fire to one of the beams. Neither the hall nor the furniture, it is believed, was insured."

LECTURES FOR WORKING MEN.—METALLURGY: IRON.—Dr. Percy has given a lecture on this subject at the Royal School of Mines, Jermyn-street. The lecturer showed a specimen of iron slag, brought from the vicinity of Mount Sinai, probably bearing a date anterior to the time of Moses. The purest iron here marked is procured by the battery process. This method is made use of in coating copper-plates with a film of iron, which preserves them when used in printing. Reference was made to the use of carbonic oxide as a reducing agent. If brought in contact with the heated oxide of iron it turns into carbonic acid, reducing the metal to the pure state. The compounds of carbon and iron are very important under the forms of wrought-iron, cast-iron, and steel. If we examine cast-iron we find fully 4½ per cent. in the form of graphite, which is not in combination with the iron. In pure iron the carbon is diffused through the mass, which accounts for its softness. The lecturer, after giving an interesting account of those compounds, remarked that the principal ores of iron were the magnetic oxide, the red and brown hematite, the spathic ore, and the clay-band ironstone.

THE ROYAL ARCADE PROJECT.—The Bill for the proposed Regent-street and Bond-street Arcade has been thrown out in the Lords, at the instance of Lord Derby, because "the influential inhabitants of the parish were opposed to the project."

ROTTERDAM.—The Schieland Palace, the museum and picture gallery of Rotterdam, situate near the high-street, has been destroyed by fire. It was a stately building of great extent, occupying a large area of ground, and was the residence of Napoleon I. in 1812, when he invaded Holland.

THE JOINERS' STRIKE AT ST. HELEN'S.—This strike still continues, without probability of a settlement. There is much distress among the families of the turn-outs, whilst the masters are almost at a standstill with their work. Every new man that makes his appearance is hunted up by the turnouts and ultimately driven away.

MONUMENTAL.—The foundation stone of the Lucknow memorial was laid on the 2nd of January. It is to be erected, "To the memory of Sir Henry Lawrence and the brave men who fell in the Residency A.D. 1857." The design is a column 40 feet high, surmounted by an Ionic cross, and ornamented by scroll sculpture. ——A statue of the Empress Eugenie is to be erected in the market-place of Puebla. Several proposals have been made as to the costume. "The first plastic representation of the crinoline," however, seems to be the one most favourably accepted.

CAPTAIN MEAD'S METHOD OF CENTRE ARCH STRIKING.—In an account of the completion of the Morhur Bridge, in a letter addressed by Captain Mead, the engineer in charge of the works, to the superintending engineer of the division, and reported in the *Engineers' Journal* of Calcutta, it is stated, that in place of blocks he substitutes sacks filled with sand, to which the weight of the centre and the portion of the arch resting on them is transferred after keying. The mouths of the sand-bags are opened simultaneously, and the sand running out lowers the centres uniformly and safely, without any violent or sudden shock. We have heard of such an arrangement before.

RAILWAY MATTERS.—The traffic receipts of railways in the United Kingdom amounted, for the week ending the 6th of February, on 11,149 miles, to 552,977*l.*, and for the corresponding week of last year, on 10,734 miles, to 499,816*l.*, showing an increase of 412 miles, and of 53,161*l.* in the receipts.——Under the auspices of the General Credit Company, a prospectus has been issued of the Great Eastern Northern Junction Railway, with a capital of 1,500,000*l.* in shares of 20*l.* The object is to connect London *viâ* the Great Eastern line, with the northern coalfields and the manufacturing districts of Yorkshire and Lancashire. The route will be from St. Ives to Askern, and the length 108¾ miles, exclusive of 21¼ miles for branches. The Great Eastern Company are to provide half the capital, and 750,000*l.* are now offered for subscription.——The bill for sanctioning a central station at the Stone Bridge, Bristol, with a through junction to the Exeter line, has passed the select committee on standing orders.

THE METROPOLITAN RAILWAY.—The half-yearly report of the directors says,—"They have arranged all matters in differences with the Great Western Railway Company. The settlements of the accounts for the working of the line has been concluded on the basis of this company receiving 57½ per cent. of the gross receipts, allowing the Great Western Company 42½ per cent. for their working expenses. The net receipts from traffic during the half-year up to the 10th of August, payable by the Great Western Company under the above arrangement, amounted to 6,787*l.* 1s. 2d., and for the four months and twenty-one days during which the line has been worked by this company, to 20,653*l.* 14s. 7d. The directors recommend that a dividend be declared at the rate of 5 per cent. per annum. They have resolved on constructing the extension to Finsbury with four lines of rails throughout, and sufficient land is being purchased for that purpose. They have submitted for the consideration of Parliament two extensions, one from Paddington through Bayswater and Kensington to Brompton, the other from Finsbury towards the docks. Upwards of 4,631,000 passengers have been conveyed over the railway during the past six months, although from the opening of the line there has never been a sufficient plant to work it adequately.

CHESTER ARCHITECTURAL SOCIETY.—The fourth monthly meeting of the session was to be held at the society's rooms on the 23rd inst.; the Rev. Edward R. Johnson, minor canon, to read a paper "On the Roman Wall between the Tyne and Solway."

NEW THEATRE IN MARSEILLES.—The Marseillese journals announce that a large theatre has been built in that city by M. Pereire, in the passage bearing his name. The pit will accommodate 2,000 spectators, and the boxes and galleries as many more.

PROPOSED NEW HOSPITAL FOR THE NORTH-EAST OF LONDON.—A meeting of a number of influential gentlemen, principally of the vicinity of Shoreditch, has been held for the purpose of promoting this object. The Rev. T. S. Evans, vicar of Shoreditch, was in the chair. Appropriate resolutions were adopted, and a committee was formed to carry out the object in view.

ASCENT OF HOLY RHOOD SPIRE, SOUTHAMPTON. Workmen have been employed in repairing the tower and spire of this church. When the requisite scaffolding was erected, and ladders were got into position, a man climbed to the top, and the ship which forms the vane was taken down with the view of being regilt. It was taken down for a like purpose in 1824.

COPPER PAINT.—A new pigment has recently been introduced at Paris by M. L. Oudry, of the Auteuil Electro-Metallurgic Works. He first obtains an absolutely pure copper by throwing down the metal by a galvanic process. He then reduces the precipitate to an impalpable powder by stamping. This powder is then combined with a particular preparation of benzine, and used in the same way as ordinary paint. Bronzed effects are produced upon it by means of dressing with acidified solutions and pure copper powder. The articles painted with the new material have all the appearance of electro-bronze, whilst its cost is less than one-sixth. It will last from eight to ten years. M. Oudry also proposes to substitute benzine oil for linseed and other oils, over which it is alleged to possess great advantages.

SEPULCHRAL REMAINS NEAR INVERNESS.—A rude sarcophagus, of sandstone slabs and micaceous gneiss rock, covered by a slaty sandstone slab, with obvious glacial scratchings on the upper side, has been discovered upon the very edge of the great 90-feet gravel terrace, which overhangs the valley of the Ness, and associated in locality with the chief local antiquities, called the Fairy Hill of Tomnahurich, and the vitrified Forts of Kessock and Craigphadrick. The sarcophagus is only 4 feet 10 inches long, by half as broad, yet it contained three skeletons, one of a child, but all small. They seem to have been doubled up, with the faces downwards. There was also an urn of baked clay, with fragments seemingly of another, along with the skeletons. The sarcophagus did not lie east and west, but north and south. The position of this tomb, on the edge of the geological "terrace," is curious, as are also the glacial scratchings on the upper side of the slab covering; but the relationship may be merely accidental.

NEW IRON BRIDGE AT RHYL.—Messrs. McKenzie, Clunes, & Holland have just completed a contract for the construction and erection of a wrought-iron lattice bridge, to carry the turnpike road and a tramway across the estuary of the river Clwyd, near Rhyl, North Wales. The ironwork consists of two spans of lattice girders, 81 feet long; one of 76 feet 6 inches, and a drawbridge opening of 47 feet 6 inches in the clear; the whole length of the bridge being 286 feet. The girders are 6 feet deep, and width from centre to centre 22 feet 6 inches. The piers are three in number, resting upon 18-inch square timber piles, cased with iron, and capped. The pier columns are composed of patent wrought pile iron, which, when riveted together, forms a complete column of 18 inches external diameter. The ends of the bridge rest upon stone abutments. The roadway or superstructure consists of cross timbers, suspended from the main girders by bolts: the cross timbers are covered by longitudinal planking and iron tramplates for the wheels of vehicles, making a double carriage-way, and leaving a pathway for foot passengers 4 feet 6 inches wide. The drawbridge opens in two halves, and can be opened and closed by two men on each side, in five minutes. The total weight of wrought iron in the bridge is 160 tons, cast iron 56 tons, and 9,748 cubic feet of creosoted timber.

TELEGRAPHIC PROGRESS.—In a few weeks, the first line of electric telegraph on Signor Bonelli's printing system will be opened between Manchester and Liverpool. Some interesting trials of the apparatus have recently been made. On a narrow table, a small model of a tramway ran from end to end, a bridge 6 inches high spanning the middle. A long solid waggon, travelling on four brass wheels, moved up and down the rails, having on its upper surface two rectilinear openings, each extending half the length of the carriage, and each coming under a comb-like series of five needles. A simplified alphabet of type, which requires no "justifying," is placed in the opening at the end of the waggon nearest the point whence it travels. The projecting type is divided in such a manner as that the points of one set of needles shall fall over the inequalities, and be lifted in the passage of the waggon. A strip of paper, in the same way, comes under the second comb, which obeys the motion of the first, and prints the message in a legible brown character, which is due, in fact, to manganese. Three hundred words in a minute are thus despatched. The promoters only propose to introduce the machine on lines where five wires already exist. The invention may be remembered by visitors to the International Exhibition; but it has undergone several improvements since it was there displayed and tested.

TENDERS.

For the erection of a house, No. 8, Mortimer-street, Cavendish-square, for Mr. William Ford. Mr. J. Tarring, architect:—

Patman & Fotheringham	£1,588 0 0
Higgs	1,577 0 0
Foster	1,486 0 0
Richards	1,443 0 0
Roper & Son	1,439 0 0
Scott	1,425 0 0
Scrivener & White	1,390 0 0
Saunders	1,350 0 0

For the erection of fifteen cottages and tavern, for Mr. J. Doggett, at Strood. Mr. Kelson, architect. Quantities supplied by Mr. Walker:—

Wilks	£2,750 0 0
Cobb	2,650 0 0
Shrubsole	2,500 0 0
Lilley	2,496 0 0
Naylar	2,473 0 0
West & Sollett	2,400 0 0
Bonnett (accepted)	2,400 0 0

For building a pair of villa residences, Battersea-rise Mr. G. H. Page, architect:—

Blackmore	£1,662 0 0
Easton	1,480 0 0
Kendall	1,460 0 0
Thornton	1,440 0 0
Bass	1,425 0 0

For Congregational chapel at Wootton. Messrs. W. & J. Hay, architects:—

Tyson	£2,218 0 0
Barker	2,163 0 0
Nelson	2,084 0 0
Gore	2,045 0 0
Dutton & Son	2,045 0 0
Okell & Morrison	2,013 0 0
Westmorland	2,010 0 0
Walker & Co. (accepted)	2,008 0 0

For Saffron Walden Hospital. Mr. Beck, architect:—

Long	£5,704 0 0
Glasscock	5,200 0 0
Wright	5,175 0 0
Brown	5,116 0 0
Gimson	5,097 0 0
Runnacles	5,026 0 0
Henshaw	4,898 0 0
Bell	4,897 0 0

For the new City Club, George-yard, Lombard-street, City. Mr. J. H. Rowley, architect. Quantities supplied by Mr. William Ellison & Mr. F. Warburton Stent:—

Patman & Fotheringham	£22,932 0 0
Kirk	21,933 0 0
Axford & Co.	21,600 0 0
Simms & Marten	20,776 0 0
Ashby & Horner	20,775 0 0
Trollope & Sons	20,763 0 0
Hill, Keddle, & Robinson	20,668 0 0
Watts	20,487 0 0
Conder	20,450 0 0
Brown & Robinson	20,287 0 0
Rider	20,180 0 0
Piper & Wheeler	19,887 0 0
Brass	19,733 0 0
Myers & Son	18,867 0 0

For new schools, Highbury-vale, Islington. Mr. Arthur Evers, architect. Quantities supplied by Mr. Yeldham:—

Myers & Sons	£1,739 0 0
Downs	1,690 0 0
Piper & Wheeler	1,615 0 0
Ashby & Sons	1,595 0 0
Dove, Brothers	1,565 0 0
Conder	1,497 0 0
Carter & Sons (accepted)	1,449 0 0

For alterations at the Southwark Tavern, Borough, for Mr. James Cartwright. Mr. Rolfe, surveyor:—

Harrop	£434 10 0
Smith	405 0 0
Duncanson & Moultrie	398 0 0
Brighton	394 0 0
Newman & Mann	376 0 0
Dennis	312 0 0